



微特技术有限公司

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微特技术有限公司
WEITE TECHNOLOGIES CO.,LTD.

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微特简介

COMPANY PROFILE



微特技术成立于2002年，总部位于湖北宜昌（世界水电之都），是一家专注于起重设备安全管理领域的国家专精特新重点“小巨人”企业。秉承“以用户为中心”的理念，微特致力于为客户提供智能化、可靠化的安全监测与管理解决方案，致力于成为全球起重安全管理领域的领导者。

微特技术在汉宜两地设置有省级起重安全智控研发中心，传感物联实验室，武汉大数据研发中心等6大技术研发平台；核心研发团队获200多项专利、多项科技成果奖，并参与起草30余项国家及行业标准。主要产品和服务

务涵盖：起重设备安全保护装置；动态称重管理系统；故障诊断多维度分析系统；钢丝绳无损检测；金属结构在线监测与寿命评估；起重智能运维管理平台；智能起重机改造解决方案等。

多年以来，微特秉承做事彻底的工匠精神，在不同行业深耕细作。国际事业部在海外多个国家组建当地服务团队，出口产品销往全球70多个国家和地区。凭借过硬的技术、可靠的质量、一流的服务和良好的口碑，赢得了国内外多家大型企业集团的合作。

Founded in 2002, headquartered in Yichang city, Hubei (the world's hydropower capital), Weite is a national specialized "little giant" enterprise focusing on the field of lifting equipment safety management. Adhering to the concept of "user-centric", Weite is committed to providing customers with intelligent and reliable safety monitoring and management solutions, and is committed to becoming a leader in the field of global lifting safety management.

The company has set up six major technology research and development platforms in Wuhan and Yichang, including the provincial lifting safety intelligent control R&D center, the sensor Internet of Things laboratory, and the Wuhan big data R&D center; the core R&D team has won more than 200 patents and many scientific and technological achievements awards, and participated in the drafting of more than 30 national and industry standards. The main products

and services include: lifting equipment safety protection device; dynamic weighing management system; fault diagnosis multi-dimensional analysis system; wire rope non-destructive testing; metal structure online monitoring and life assessment; crane intelligent operation and maintenance management platform; intelligent crane transformation solutions, etc.

For many years, Weite has adhered to the craftsman spirit of doing things thoroughly and has worked hard in different industries. The International Business Department has established local service teams in many overseas countries, and exported products to more than 70 countries and regions around the world. With excellent technology, reliable quality, first-class service and good reputation, we have won long-term cooperation with many large enterprise groups domestic and abroad.

品质保障 QUALITY ASSURANCE



- ★ 船级社CCS认证
- ★ 欧盟CE认证
- ★ ISO9001-2008质量体系认证
- ★ ISO14001:2015环境管理体系认证
- ★ ISO45001:2018职业健康管理体系认证
- ★ 2500T超大型起重机超载限制器生产资质
- ★ 342000Kn.m超大型力矩限制器生产资质
- ★ 起重机安全监控管理系统通过国家认证
- ★ 起重机械力矩限制器防爆资质
- ★ 起重机械安装(含维修)A级资质
- ★ 国标、行标制/修定单位
- ◆ Classification society CCS certification
- ◆ The CE certification
- ◆ ISO9001-2015 quality system certification
- ◆ ISO14001:2015 environmental management system certification
- ◆ ISO45001:2018 occupational health management system certification
- ◆ 2500 t very large crane overload limiter production qualification
- ◆ 342000 kn. m very large load moment indicator production qualification
- ◆ Crane safety monitoring management system of national recognized qualification
- ◆ Crane load moment indicator explosion-proof certificate
- ◆ Hoisting machinery maintenance class A qualification
- ◆ National standard drafting company



先进的仪表实验检测实验室 CRANE SAFETY INSTRUMENT EXPERIMENTAL TESTING CENTER

为了进一步提升产品品质,微特投资建设了传感物联实验室,在同行中率先引进了微机控制电子式万能试验机、雷击浪涌发生器、静电放电发生器、工频磁场、电快脉冲、高低温交变湿热试验箱等一系列先进实验测试设备。通过模拟极端条件下的应用环境来测试微特产品,以充分确保产品的可靠性。

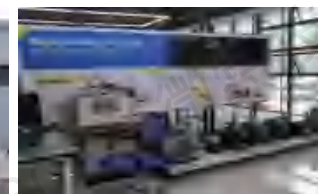
To improve the product quality,WEITE invested and built a Sensor Testing Laboratory, and was the first to introduce Electrical Universal Testing Machine, Lightning Surge Generator, Electrostatic discharge



generator, PFMF,EFT/B,GDJS and other advanced testing machine. WEITE test products through simulating application environment under extreme conditions, to ensure the reliability of each product.



吊装实验起重机
Hoisting Experiment crane



旋转机械故障模拟实验台
Rotating Machinery Fault Simulation Experiment Platform



海洋平台导管架(光纤)应力监测
Stress Monitoring of Offshore Platform Conduit Rack (Fiber Optic)



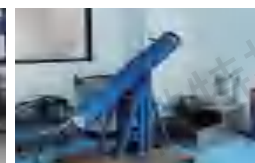
电子式万能试验机
Electronic universal testing machine



高低温交变湿热试验箱
High and low temperature alternating hot and humid test chamber



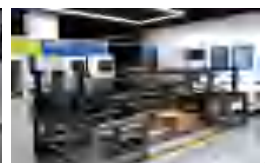
高温老化试验箱
High temperature aging test chamber



深水高压实验机
Deepwater pressure Testing Machine



IPX7浸水试验
IPX7 immersion test



钢丝绳无损检测实验
Wire rope testing experiment



Ip等级防尘实验
IP level dustproof test



盐水喷雾实验
Salt water spray experiment



Ip等级强喷水实验
IP level strong water spray test



光纤光栅管道监测实验
Pipeline monitoring experiment



弧形闸门模拟实验器
Simulation of Radial Gate



电快速脉冲群试验机
EFT/B(Electrical fast transient burst)Testing Machine



静电放电发生器
Electrostatic discharge generator



雷击浪涌发生器
Lightning surge generator



工频磁场试验机
PFMF(power frequency magnetic fields)Testing Machine



自动光学检测仪
Ao I(Automated optical Inspection)

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www.weite.tech

WT-W650V3海洋起重机安全监控管理系统 /在线油压监测系统

WT-W650V3O ffshore crane Safety Monitoring & Management Device
/Online Hydraulic Monitoring System

系统典型应用 Typical applications



型 号: W650V3	Model No.: W650V3
显 示: 8英寸液晶显示屏	Display: 8 inch LCD
环境温度: -20°C~+70°C	Operating temperature: -20°C~+70°C
环境湿度: 95% (25°C)	Operating humidity: 95% (25°C)
信号输入: ≤6通道	Signal input: ≤6channels
控制输出: ≤6通道	Control output: ≤6channels
系统误差: ≤5%(F.S)	System composition error: ≤5%(F. S)
能量消耗: <30W	Powerconsumption: <30W
报警音量: >60db	Alarmvolume: >60db
防护等级: IP65	IP grade: IP65
工作电压: AC220V/DC24V	Powersupply: AC220V / DC24V

优越性 The superiority

确保安全,可靠 Reliable

- * ISO、CE、CCS认证, 品质可靠
- * 时刻监控起重机作业的各项数据
- * 意外断电有数据保护功能
- * 视觉和听觉双重报警
- * 带操作黑匣子记录功能, 对危险操作可返回查看
- * 充分考虑现场工作情况, 防水防尘防碰撞
- * ISO、CE、CCS certification, quality and reliable
- * Time monitoring crane job data
- * Unexpected power outages data protection features
- * Visual and auditory dual alarm
- * With the operating data logging capabilities, dangerous operation to return to the View
- * Give full consideration to the work site, waterproof and dustproof anti-collision

使用方便,直观 Intuitive

- * 一屏显示各类数据、所有信息尽收眼底
- * 显示图形可完全符合您的起重机设备
- * 模拟起重机动态显示(指定型号仪表)
- * 系统简单易懂, 智能人机交互
- * Full screen display various data, all information can be seen
- * Display graphics fit your crane device
- * Dynamic display can simulate crane (instrument) of the specified type
- * System operation simple, intelligent human-computer interaction.

提升效率,提高生产力 Productive forcesy

- * 保障起重机安全可靠、高效的运行
- * 支持数据下载分析 (远程功能可实现在线分析与诊断)
- * 直观的图形显示给操作员提供便捷的参考
- * 可靠的售后团队, 及时响应你的需求
- * Ensuring crane safe, reliable and efficient operation
- * Supported operating data download (remote function available on-line analysis and diagnosis)
- * Intuitive graphical display provides the operator with a quick reference
- * Reliable after-sales team to respond to your needs in a timely manner

功能扩展,实用 Practical

- * 在线监测项目
- * 累计载荷重量记录
- * 累计循环次数记录
- * 累计运行时间记录
- * 主副钢丝绳保养提示
- * On-line monitoring project
- * The cumulative load weight record
- * Cumulative record cycles
- * Total run time record
- * Main hook and rope maintenance tips

兼容性强,灵活 Flexible

- * 中英文界面切换
- * 系统兼容于各类主流传感器
- * 系统适用于各类起重机
- * 系统输出信号类型广泛
- * Chinese and English interface
- * Compatible with all types of sensors on the market
- * Applicable to all types of crane
- * Widely output signal types

► 轴销重量传感器



WS-ZX

测量范围: 从5KN开始
 典型应用: 工业称重
 制造自动化
 钢丝绳的拉力测量
 测量精度: $1.0 \pm 0.005 \text{mv/v}$
 极限过载: 250%F.S
 密封等级: IP68
 安全过载: 150%F.S
 使用温度范围: $-30^\circ\text{C} \sim +70^\circ\text{C}$

特性: 内置薄膜传感元件
 不锈钢材质
 集成放大电路
 具有较好的长期稳定性
 抗冲击性能强
 适合动态、静态测量
 温度漂移小

Range: start from 5KN
 Typical Applications: Industrial weighing;
 manufacturing automation; wire rope pull
 strength measurement
 Accuracy of measurement: $1.0 \pm 0.005 \text{mv/v}$
 Ultimate overload: 250%F.S
 IP Code: Ip68
 Safe overload: 150%F.S
 Temperature range: $-30^\circ\text{C} \sim +70^\circ\text{C}$

Characteristics
 Built-in film sensing element
 Stainless steel material
 The integrated amplifier circuit
 Long-term stability
 Strong impact resistance
 Suitable for dynamic and static
 measurements
 Tiny temperature drift error

► 拉力重量传感器 Plate ring type load cell



WS-BH

典型应用: 负载感应
 传送运输系统
 钢丝绳的拉力测量
 测量精度: $1.0 \pm 0.005 \text{mv/v}$
 极限过载: 250%F.S
 密封等级: IP68
 安全过载: 150%F.S
 使用温度范围: $-30^\circ\text{C} \sim +70^\circ\text{C}$

特性: 内置薄膜传感元件
 不锈钢材料
 集成放大电路
 具有较好的长期稳定性
 抗冲击性能强
 重复精度高
 适合动态、静态测量
 温度漂移小

Typical Applications: load sensing;
 Transfer transportation system; wire rope
 pull strength measurement
 Accuracy of measurement:
 $1.0 \pm 0.005 \text{mv/v}$
 Ultimate overload: 250%F.S
 IP Code: Ip68
 Safe overload: 150%F.S
 Temperature range: $-30^\circ\text{C} \sim +70^\circ\text{C}$

Characteristics:
 Built-in film sensing element
 Stainless steel material
 The integrated amplifier circuit
 Long-term stability
 Strong impact resistance

► 柱式重量传感器 Column type load cell



WS-ZS

测量范围: 从0.05T---500T
 典型应用: 负载感应
 传送运输系统
 钢丝绳的拉力测量
 测量精度: $1.0 \pm 0.005 \text{mv/v}$
 极限过载: 250%F.S
 密封等级: IP68
 安全过载: 150%F.S
 使用温度范围: $-30^\circ\text{C} \sim +70^\circ\text{C}$

特性: 内置薄膜传感元件
 不锈钢材料
 集成放大电路
 具有较好的长期稳定性
 抗冲击性能强
 重复精度高
 适合动态、静态测量
 温度漂移小

Range: 0.05ton-500ton
 Typical Applications: load sensing; Transfer
 transportation system; wire rope pull
 strength measurement
 Accuracy of measurement: $1.0 \pm 0.005 \text{mv/v}$
 Ultimate overload: 250%F.S
 IP Code: IP68
 Safe overload: 150%F.S
 Temperature range: $-30^\circ\text{C} \sim +70^\circ\text{C}$

Characteristics
 Built-in film sensing element
 Stainless steel material
 The integrated amplifier circuit
 Long-term stability
 Strong impact resistance
 Suitable for dynamic and static
 measurements
 Tiny temperature drift error

► 三滑轮重量传感器 Line rider type load cell



WS-SHL

测量范围: 从0.5T开始
 典型应用: 负载感应
 传送运输系统
 钢丝绳的拉力测量
 测量精度: $1.5 \pm 0.005 \text{mv/v}$
 极限过载: 250%F.S
 密封等级: IP68
 安全过载: 150%F.S
 使用温度范围: $-30^\circ\text{C} \sim +70^\circ\text{C}$

特性: 内置薄膜传感元件
 不锈钢材料
 集成放大电路
 具有较好的长期稳定性
 抗冲击性能强
 重复精度高
 适合动态、静态测量
 温度漂移小

Range: start from 0.5ton
 Typical Applications: load sensing; Transfer
 transportation system; wire rope pull
 strength measurement
 Accuracy of measurement: $1.0 \pm 0.005 \text{mv/v}$
 Ultimate overload: 250%F.S
 IP Code: IP68
 Safe overload: 150%F.S
 Temperature range: $-30^\circ\text{C} \sim +70^\circ\text{C}$

Characteristics
 Built-in film sensing element
 Stainless steel material
 The integrated amplifier circuit
 Long-term stability
 Strong impact resistance
 Suitable for dynamic and static
 measurements
 Tiny temperature drift error

► 角度传感器 Angle sensor



WS-JDC-100

所用元件:导电塑料电位器(CPP)
工作电压:DC5V
测量范围: $-10^{\circ}\sim+110^{\circ}$
耐冲击性:20g 15~20ms
额定输出:DC3~6.9V/0~90°
使用环境湿度:10~95%
使用温度范围: $-30^{\circ}\text{C}\sim+70^{\circ}\text{C}$
耐水性:防水型 IP68
线性度: 0.05、0.1、1%
使用温度范围: $-30^{\circ}\text{C}\sim+70^{\circ}\text{C}$

Component: conductive plastic potentiometer (CPP)
Rated output: DC3-6.9V / 0-90°
Linearity: 0.05、0.1、1%
Water resistance: waterproof type, Ip68
Temperature range: $-30^{\circ}\text{C}\sim+70^{\circ}\text{C}$
Working voltage: DC15V
Impact resistance: 20g 15~20ms
Humidity range: 10-95%
Measuring range: $-10^{\circ}\sim+110^{\circ}$

► 风速传感器 Wind speed sensor



WS-YSY-1

测量范围: 1.0~60m/s
准确度: $<30\text{m/s} \pm (0.5+0.05v)$
 $\geq 30\text{m/s} \pm 5\%$
分辨率: 0.1m/s
起动风速: $<0.1\text{m/s}$
工作环境: $-30^{\circ}\text{C}\sim+60^{\circ}\text{C}$
底座安装内孔: $\phi 45\sim 52$

Range: 1.0-60m/s
Accuracy: $<30\text{m/s} \pm (0.5+0.05v)$
 $\geq 30\text{m/s} \pm 5\%$
Resolution: 0.1m/s
Starting wind speed: $<0.7\text{m/s}$
Temperature: $-30^{\circ}\text{C}\sim+60^{\circ}\text{C}$
Base mounting hole: $\phi 45\sim 52$

► 编码器 Encoder



WS-SAG-1213

接口:同步串行(RS422)
输出码:格雷码或二进制码
单圈最大脉冲数:65,563(16位)
EMC EN61000-6-2
EN61000-6-4

Interface: Synchronous Serial (RS422)
Output code: Gray code or binary code
One-loop Maximum number of pulse: 65,563(16 bits)
EMC EN61000-6-2
EN61000-6-4

► 油温传感器 Oil temperature sensor



WS-YW-01

测量范围 $^{\circ}\text{C}$: $-50^{\circ}\text{C} - 150^{\circ}\text{C}$
工作电压:18-32V(一般为24V)
模拟电流输出[mA]:4-20
负载最大值[Ω] 250
短路保护:有
过载保护:有
精密模拟输出[K]: $\pm 0.3 + (\pm 0.1\% \text{ MS})$
使用温度 $^{\circ}\text{C}$: $-25^{\circ}\text{C} - 80^{\circ}\text{C}$
耐水性:防水型 IP68
防爆标志:Exia II CT5

Measurement range in $^{\circ}\text{C}$: $-50^{\circ}\text{C} - 150^{\circ}\text{C}$
Operating voltage: 18-32V (generally 24V)
Analog current output [mA]: 4-20
Maximum load [Ω]: 250
Short-circuit protection: Available
Overload protection: Available
Precision analog output [K]: $\pm 0.3 + (\pm 0.1\% \text{ of the full scale value})$
Operating temperature in $^{\circ}\text{C}$: $-25^{\circ}\text{C} - 80^{\circ}\text{C}$
Water resistance: Waterproof type, IP68
Explosion-proof mark: Exia II CT5

► 油压传感器 Oil pressure sensor



WS-YY-01

测量范围: $-100\text{KPa}\sim 200\text{MPa}$
工作电压:12~36v(一般为24v)
过载能力: 2倍满量程压力
压力类型:表压、绝压、差压
使用温度范围: $-20^{\circ}\text{C}\sim +85^{\circ}\text{C}$
耐水性:防水型 IP68
综合精度: $\pm 0.1\% \text{ FS}$
(非线性、重复型、迟滞)
信号输出:4~20mA/1~5VDC/0~5VDC
防爆标志:Exia II CT5

Measuring Range: $-100\text{KPa}\sim 200\text{MPa}$
Power Supply: 12~36v (generally 24v)
Overload Capacity: 2 Times Full Scale Pressure
Pressure Type: Gauge pressure, Absolute pressure, Differential Pressure.
Operating Temperature Range: $-20\sim+85^{\circ}\text{C}$
Water Resistance: Waterproof Type Ip68
Comprehensive Accuracy (Non-linear, Repeatable, Hysteresis): $\pm 0.1\% \text{ FS}$
Signal Output: 4~20mA/1~5VDC/0~5VDC
Explosive-proof grade: Exia II Ct5;

► 高度限制开关 Height limit switch



WS-GJ-01

用于其重机钢丝绳防过卷的一种机械式自动保护开关,它与一适合重量的重锤配套使用,利用吊钩的上下运动托起或放下重锤时断开或接通开关,实现自动切断卷扬机动力电源,达到限制钢丝绳过卷的目的。
适用电源:DC12V--AC380V
额定电流:5A

WS-GJ-1 switch is used for lifting wire rope anti-volume limit an electrical automatic protection switch. It is an appropriate weight of the hammer supporting the use of hook up and down movement to hold up or disconnect or turn-on switch, put down the hammer to achieve the purpose of automatically cut off the hoist power supply connected braking system to limit rope over volume, and reach hook in the purpose of a certain height within the lift.
Adapter power: DC12V -- AC380V
Rated current: 5A

WT-W660V3吊车防碰撞系统

WT-W660V3 crane anti-collision system

系统概述 System Overview

WT-W660V3吊车空间安全监控管理系统是根据国家GB/T28264-2012新标准研制的针对各类臂架设备的改造和新建标准的强制实施,同时适用于各领域的起重施工设备。



Based on GB/T28264-2012(the newest national standard) enforce compliance, WT-W660V3 crane space safety monitoring management system is made for kinds of boom device transformation and creation, and its applicable to hoisting construction equipment in all areas.



系统特点 Platform features

全方位实时监控

该系统对设备的运行进行全方位的实时监控,避免吊车在吊物过程中与现场设备碰撞,降低因操作者的疏忽或失误而造成的安全事故,有效的保证该设备和其它设备的安全;

航空级数据记录仪(黑匣子)

根据现场吊车所在3维空间的相关数字坐标,该系统能实时准确的反映监控对象的实时工况,并配备航空级别故障数据记录仪(黑匣子)可随时再现设备不同时段的关键数据库,提供可追溯的客观历史记录;

三大模块全面保障设备安全

系统以安全监控、信息记录及远程控制模块为基础,实现故障自我诊断、对设备可能出现的危险进行有效的预警、对发生故障的设备依据历史数据分析,全面提高大型设备的安全性;

设备环境三维控制

通过建立吊车使用环境的三维坐标,避免吊车在使用过程中和设备的相互碰撞,通过传感器和监控仪表控制吊车在安全空间内运行。

All-round real-time monitoring

This system takes all-round real-time monitoring to the hoisting equipment, to avoid the crane collide with other equipments around, reduce the occurrence of accidents because of operator's negligence or improper operation, effective to keep the crane and equipments around safety.

Aircraft grade data recorder

According to the crane's 3-d digital coordinates, the system can real-time accurate reflect the condition of real-time monitoring objects, and equipped with aircraft grade data recorder, and it can represent the key database at different times of the equipment at any time, to provide the traceability of objective history.

The three modules to ensure the safe operation of equipment

Based on safety monitoring module, information record module and remote control module, the system achieve crane malfunction self-diagnosis function, give effective alarm for possible danger, record fault information for analyzing, to improve the safety of equipment.

Equipment environment 3-d control

Building crane working condition 3-d digital coordinates, to avoid the crane collide with other equipments around, effective to keep the crane and equipments around operation safety by sensors and monitoring instrument.

海洋吊机典型应用示意图(WT-W660V3)

Marine crane typical application schemes(WT-W660V3)



典型应用平台相关特点

Typical application platform related characteristic

- 1、具备常用的通讯接口,无源开关量信号接口、4-20mA模拟信号接口,脉冲量信号接口,有独立并可扩展的I/O功能。整机数据采用Modbus或Profibus通讯。
- 2、可实时查看历史操作记录,并可在后台进行分析判断操作的正确性。
- 3、能将设备的各种运行信息上传并记录在服务器中。
- 4、可远程查看设备的实时GPS位置。
- 5、对常规故障进行预警,报警并控制,并保存故障信息,提高设备运行的安全可靠。
- 6、对设备历史运行记录进行管理。
- 7、利用远程模块,实现设备的远程修复。
- 8、提供与PLC的通讯接口,能读取各类实时数据并实时显示。

- 1.With common communication interface, passive switch signal interface, 4-20mA analog signal interface, impulse signal interface, independent and extensible I/O function. System data use Modbus or Profibus communication.
- 2.Can view real-time operating historic records and analysis to judge the correctness of the operation in the background.
- 3.Can upload all kinds of system running information and save it in server.
- 4.Can remote view GPS position of equipment .
- 5.Can do warning, alarm and control for common fault and save fault information , improve equipment operation safety and reliability
- 6.Manage system historic running information.
- 7.redlize remote maintenance by remote module
- 8.Offer PLC communication interface, read all kinds of real-time data and real-display.

WS-W660V7海洋吊机自动润滑系统

WS-W660V7 Automatic lubrication system for offshore cranes

系统概述 System Overview

WS-W660V7系列海洋吊机自动润滑系统由双线式润滑泵、递进式分配器、监控单元及附件组成。润滑泵通过管道输送润滑脂到分配器,经过分配器在向各润滑部位进行定量供油,以确保各润滑部位润滑良好。监控单元控制润滑泵的运行及检测集中润滑系统的运行状况。

The WS-W660V7 series offshore crane automatic lubrication system is composed of a double-line lubrication pump, progressive distributors, a monitoring unit, and accessories. The lubrication pump transports grease to the distributors through pipelines. After that, the distributors supply a fixed amount of oil to each lubrication point to ensure good lubrication at each point. The monitoring unit controls the operation of the lubrication pump and detects the operating status of the centralized lubrication system.



- | | |
|-----------------------|---|
| 1、电动补油泵 | 1. Electric oil makeup pump |
| 2、双线式自动润滑泵 | 2. Double-line automatic lubrication pump |
| 3、显示仪表 | 3. Display instrument |
| 4、臂杆前端递进式分配器 | 4. Progressive distributor at the front end of the boom |
| 5、A字架递进式分配器 | 5. Progressive distributor of the A-frame |
| 6、回转中心递进式分配器、马达递进式分配器 | 6. Progressive distributor at the slewing center/progressive distributor of the motor |

技术参数 Technical Parameter

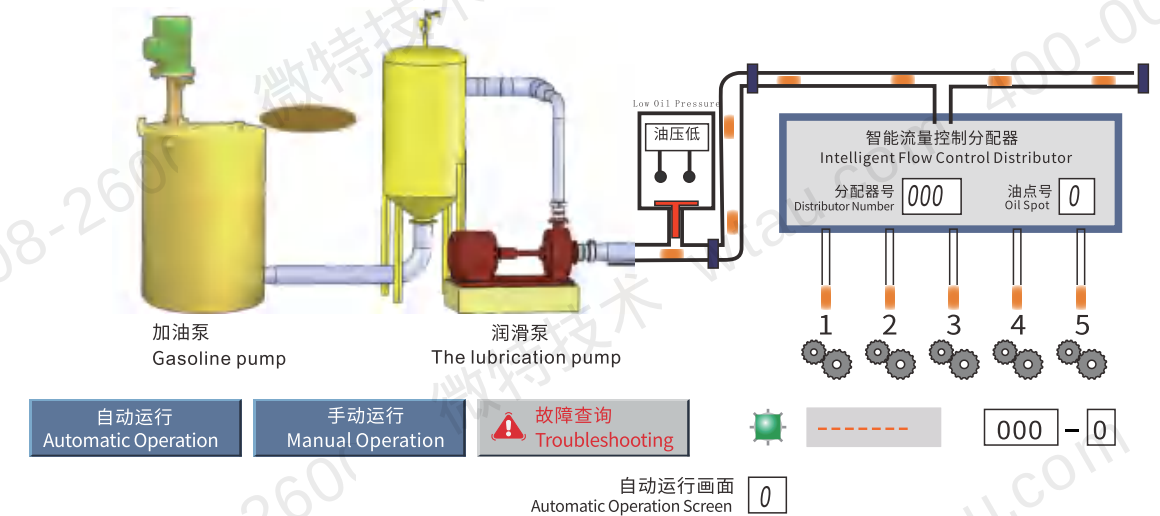
公称压力: 25Mpa	Nominal pressure: 25Mpa
最高压力: 30Mpa	Maximum pressure: 30Mpa
额定流量: 12mL/min	M/Rated flow: 12mL/min
额定电压: DC24v	Rated voltage: DC24v
适用油脂: NLGI-0#, 1#	Grease available: NLGI-0#, 1#
防护等级: IP65	Protection level: IP65
工作温度: -40℃~+75℃	Working temperature: -40℃~+75℃
润滑泵带有低液位报警功能和故障报警功能	The grease pump is designed with alarm functions of low level and fault.

润滑泵带有低液位报警功能和故障报警功能

The grease pump is designed with alarm functions of low level and fault

WT-W601系列串行总线式智能集中润滑系统
WT-W601 Serial Bus Integrated Intelligent Lubricating System

2017-02-14 00:00



三大优势 Three Major Advantages

定时定量精准供油

可根据设备润滑部位的需求,定时定量地对设备各个润滑部位进行供油作业。

减小磨损, 延长设备寿命

减小磨损, 延长设备寿命: 定时定量对润滑部位进行供油润滑, 可以减少摩擦阻力, 减小接触磨损, 延长关键部件的使用寿命, 降低维护成本。

多功能防护

可以起到防锈、减震和密封作用, 适应恶劣海上作业环境。

Precise Oil supply at Fixed Time and Quantity

According to the needs of the lubrication parts of the equipment, carry out oil supply operations for each lubrication part of the equipment at fixed time and quantity.

Reduce wear and Extend Equipment Lifespan

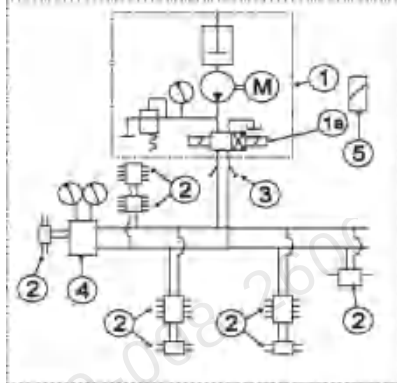
Regular and quantitative oil supply and lubrication to the lubrication parts can reduce frictional resistance, minimize contact wear, prolong the service life of key components, and lower maintenance costs.

Multifunctional protection

At the same time, it can also play a certain role in anti-rust, shock absorption and sealing, and is suitable for harsh marine operating environments.

润滑油在线监测系统 Lubricating oil online monitoring system

电动润滑泵终端式系统 Electric lubrication pump terminal type system



系统图 system diagram

系统介绍 Introduction of The system

电控柜内的指令时间继电器使系统按照规定的给油间隔时间自动动作，按“给油时间延长”表示给油工作的异常，另设有“贮油器空”，“过负荷运转”等警报信号。指令时间继电器按系统一次给油工作实际所需时间加2~5分钟调整。

供油主管末端装有压力操纵阀或压差开关阀或二只压力开关阀（每管线单配），当末端压力达到设定值，向电控柜发送信号，换向阀1a换向，润滑泵停止系统一次给油工作完成。经过设定的时间间隔后，系统再次工作，从另一条主管供油。

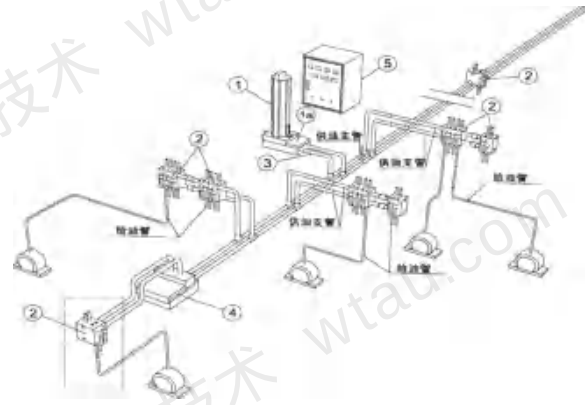
系统设计通常按给油时间5分钟以内（最高8分钟以内）设计，压差开关/压力操纵阀的标准设定压力为5MPa左右。

压差开关/压力操纵阀设置在压力损失最大处的供油主管末端，建议以后再布置一块分配器（见下图双点线框内），以便于末端油脂的更新。

对于中小型系统，为方便电器配线，可以采用前端压力控制换向，即在换向阀二出口管线上并联安装压力控制器，末端无须安装压差开关/压力操纵阀。

特点 The Feature

采用末端压力作为系统给油工作完成的控制参数，设计容易。适用于润滑点分布较广的场合。



The instruction time relay in electric cabinet automatic operate according to the specified time of interval oil supply. Press “oil supply delay” means oil supply work abnormal. Also have warning signal like “Oil Tank Empty” and “Overload operation”. The instruction time relay add 2 to 5 minutes for adjusting according to once oil supply actual time.

The end of oil supply pipes is equipped with a pressure control valve or differential pressure switch valve or two pressure on and off valve (single line per pipe). When the end of pressure reach the setting value, it will send signal to electric cabinet, selector valve 1a work, the pump stop the system once to finish the lubrication. After the setting interval time, system work again and supply oil from another oil pipe.

The system usually design according to oil supply time with-in 5 minutes(max within 8 minutes), the standard setting pressure of pressure valve is about 5 MPa.

The pressure valve is setted on the end of the main oil supply pipe where is the max pressure- loss. It is recommended to arrange a distributor (please check the two-wire box below) to update the end oil easily.

For small and medium-sized systems, for the convenience of electrical wiring, front-end pressure control can be used for reversing, that is, a pressure controller can be installed in parallel on the outlet pipeline of the reversing valve, and there is no need to install a differential pressure switch/pressure control valve at the end.

It is using the end of the pressure as a system to finish the oil control parameters, easy design. Applicable to wide range distributed of lubrication points situation.

系统概述 System Overview

润滑油在线监测系统是微特技术基于物联网云平台的一套油液在线远程智能监测诊断系统，其通过对油液的水分、粘度、污染度、金属磨粒等关键指标的在线实时监控，实现对设备的油液状态及设备运行状态远程智能监测诊断。



The online oil fluid monitoring system is a set of online remote intelligent monitoring and diagnosis system for oil fluid developed by weite Technology based on the Internet of Things cloud platform. Through the online real-time monitoring of key indicators of the oil fluid, such as moisture content, viscosity, degree of contamination, and metallic wear particles, it enables the remote intelligent monitoring and diagnosis of the oil fluid status of the equipment and the operation status of the equipment.

该产品集先进的油液传感器、云平台物联网及大数据技术，结合微特技术多年的油液监测累计的核心数据算法，极大提升数据的准确性、及时性，数据分析的有效性，帮助客户实现设备的远程智能监控，预测性维护保养，提升设备运行效率和生产产能，降低设备维修及润滑总成本，对油液提供360度全方位的实时在线监测，为设备的可靠运行提供有力保障。



This product integrates advanced oil fluid sensors, Internet of Things (IOT) technology on the cloud platform, and big data technology. By combining with the core data algorithms accumulated through years of oil fluid monitoring by weite Technology, it greatly improves the accuracy and timeliness of data, as well as the effectiveness of data analysis. It helps customers achieve remote intelligent monitoring of equipment, predictive maintenance, and enhances the operation efficiency of equipment and production capacity. Moreover, it reduces the total cost of equipment maintenance and lubrication. It provides a 360° all-round real-time online monitoring of the oil fluid, offering a strong guarantee for the reliable operation of the equipment.

01 粘度监测 Viscosity Monitoring

油液粘度 变化危害
监测防范
Viscosity of Oil Fluid
Hazards of viscosity change
Monitoring and prevention

02 水分监测 Moisture Monitoring

微量水分/水分
水分危害 监测防范
Trace moisture or moisture
Hazards of moisture
Monitoring and prevention

03 污染度监测 Contamination Degree Monitoring

油液污染 污染危害
监测防范
Oilfluid contamination
Hazards of contamination
Monitoring and prevention

04 磨损颗粒监测 Wear Particle Monitoring

异常磨损 磨损危害
监测防范
Abnormal wear
Hazards of wear
Monitoring and prevention

应用场景区 Application scenario



吊车智能化系统 Intelligentization of cranes

系统概述 System Overview

海洋平台上使用的起重机,是海洋平台装卸货物和吊运人员上下平台的唯一设备,是海洋石油生产中最重要的生产和安全设备之一,其安全性、可靠性、可维修性、可抗风性及耐腐蚀性要求很高。需对设备的智能化、寿命周期进行严格的监控和数据分析,使设备始终保持在最佳状态。

吊车智能化系统,采用工业级电脑进行数据处理,基于有线或5G无线通信传输手段实现远程操作;光纤传感方式实时监测设备的运行状态。把起重机的各种工作参数(重量信号、角度信号、视屏信号)、主结构应力、裂纹、应力等数据,通过相应的传感器检测出来,经过信号处理后送至工业电脑进行数据处理和AI算法;判断吊车使用状况和寿命周期评估,防止设备出现安全隐患。

The cranes used on offshore platforms are the only equipment for loading and unloading goods on the offshore platforms and hoisting personnel up and down the platforms. They are one of the most important production and safety equipment in offshore oil production, and have very high requirements for safety reliability, maintainability, wind resistance and corrosion resistance. It is necessary to strictly monitor the intelligence and life cycle of the equipment and conduct data analysis to keep the equipment in the best condition at all times.

The intelligent system of the crane uses an industrial-grade computer for data processing and realizes remote operation based on wired or 5G wireless communication transmission means; the optical fiber sensing method is used to monitor the operation status of the equipment in realtime. various working parameters of the crane (weight signal, angle signal, video signal), main structure stress, cracks, stress and other data are detected by corresponding sensors, and after signal processing, they are sent to the industrial computer for data processing and AI algorithm; judge the usage status of the crane and evaluate the life cycle to prevent potential safety hazards of the equipment.



组成模块 Composition Modules

01 吊车远程操作	01 Remote Operation of crane	03 网络传输	03 Network Transmission
PLC 控制系统 权限选择	pLc control system Authority selection	光纤 光纤滑环 5G 无线	Optical Fiber Fiber Optic Slip Ring 5G Wireless
02 安全系统	02 Safety System	04 主结构应力监测系统	04 Stress Monitoring System
视频摄像头 毫米波雷达传感器 力矩系统 油压监测 自动润滑 钢丝绳在线监测 吊车结构在线监测	Video camera Millimeter - wave Radar sensor Torque system Oil pressure Monitoring Automatic Lubrication Online Monitoring of steel Wire Rope Online Monitoring of crane structure	操作台 系统部署 运维监测	Operation Console System Deployment Operation and Maintenance Monitoring

吊车远程操作 Remote operation of the crane

由驾驶员在远程操作室做出,操作指令被编码成数字信号后,通过光纤传输系统发送给起重机控制系统,经过控制系统将控制信号发送给起重机的执行机构,精准完成远程操作下发动作。

在整个操作过程中,安全系统还会不断地接收来自起重机各个部位的传感器数据,对这些数据进行实时分析和处理。一旦发现任何异常情况,控制系统会立即发出警报,并采取相应的保护措施,确保起重机和操作人员的安全。



The operation instructions are given by the driver in the remote operation room. After being encoded into digital signals, these instructions are sent to the crane control system through the optical fiber transmission system. Then, the control system sends the control signals to the actuators of the crane, precisely completing the actions issued by the remote operation.

During the entire operation process, the safety system will continuously receive sensor data from various parts of the crane, and conduct real-time analysis and processing of this data. Once any abnormal situation is detected, the control system will immediately issue an alarm and take corresponding protective measures to ensure the safety of the crane and the operators.

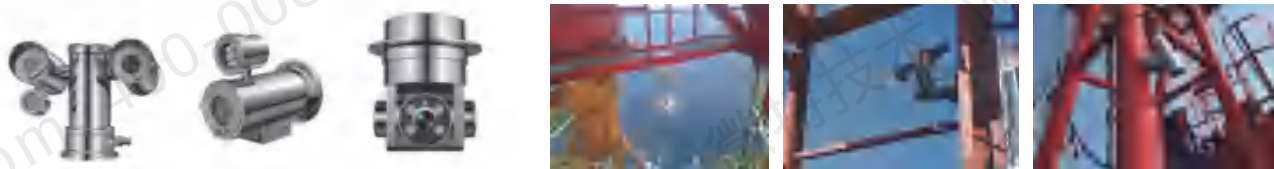


海洋平台视频监控系统 Video monitoring system for offshore platforms

系统概述 System Overview

在原有CCTV基础上,部署AI算法,对检测区域人员试图非法闯入检测区域时,AI算法能够迅速捕捉并标记这一行为,同时触发警报系统,将入侵信息实时推送给安全管理人员。这一流程的高效运转,极大地缩短了从入侵发生到警报响应的时间,为及时采取措施制止入侵行为提供了有力保障。

Based on the original CCTV system, AI algorithms are deployed. When personnel in the detection area attempt to illegally enter the detection area, the AI algorithms can quickly capture and mark this behavior. At the same time, the alarm system will be triggered, and the intrusion information will be pushed to the security management personnel in real time. The efficient operation of this process has greatly shortened the time from the occurrence of the intrusion to the alarm response, providing a strong guarantee for taking timely measures to stop the intrusion behavior.



防爆模式: ExdIICT6 Gb/ExtD A21 IP68 T80°C;
Exd II CT6/DIPA21 TA, T6
防护等级: IP68
摄像机名称: 200万/300万/500万/800万网络摄像头可选
摄像机镜头: 4/25/30倍电动变焦镜头可选
球机旋转: 水平360°; 垂直-90°~+90°
旋转速度: 1°-25°/s
球机扫描: 花样扫描4条/巡航8条(32个巡航点/条)
支持3D定位,支持角度查询/显示
具有雨刷功能
红外距离: 100m

Explosion-proof Mode: ExdIICT6 Gb/ExtDA21 IP68 T80°C;
Exd II CT6/DIPA21 TA, T6
Protection Level: IP68
Camera Name: Optional network cameras with 2MP, 3MP,
5MP or 8MP resolution
Camera Lens: Optional electric zoom lenses with 4x, 25x or
30x zoom
Pan/Tilt Rotation Range of the PTz Camera: 360°
horizontally; -90°to +90°vertically
Rotation speed: 1°-25°/s
PTz Camera scanning: 4 pattern scans / 8 cruise routes (32
cruise points per route) supports 3D positioning,
and angle query/display Equipped with a wiper
function
Infrared Range: 100m

系统特点 system Features

实时监控 Real-time Monitoring

CCTV系统能够实时监控被监控区域的情况,让人们能够看到被监视现场的实际发生的一切情况。

The CCTV system is capable of monitoring the situation in the monitored area in real time, allowing people to see everything that actually happens at the monitored site.

录像记录 Video Recording

系统具有录像功能,能够将被监控区域的情况记录下来,便于事后查询和分析。

The system has a video recording function, which can record the situation in the monitored area, making it convenient for subsequent query and analysis.

远程遥控 Remote Control

用户可以通过遥控设备操作摄像机的云台和变焦功能,实现远程监控和调节。

Users can operate the pan-tilt and zoom functions of the camera through remote control devices to achieve remote monitoring and adjustment.

联动报警 Linked Alarm

CCTV系统可与防盗报警系统等其他安全技术防范体系联动运行,提高安全防范能力。

The CCTV system can operate in linkage with other security technology prevention systems such as the anti-theft alarm system, improving the security prevention capability.

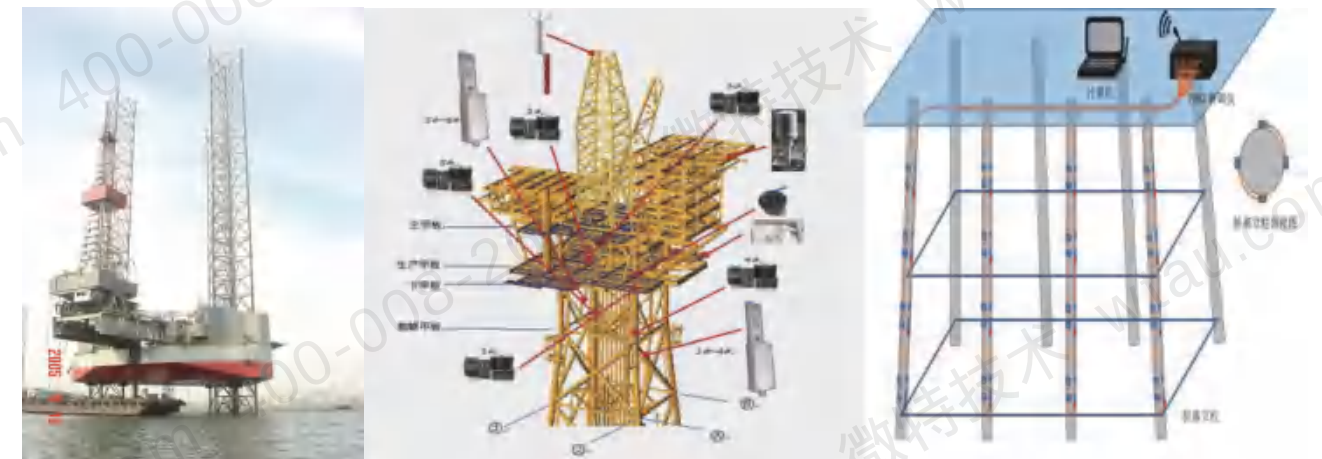
WT-W800导管架平台监测系统 WT-W800 Online safety monitoring system for jacket platforms

系统概述 System Overview

导管架平台又称桩式平台,是由打入海底的桩柱来支撑整个平台,能经受风、浪、流等外力作用,可分为群桩式、桩基式(导管架式)和腿柱式。导管架平台主要由:导管架、桩、导管架帽和甲板四部分组成。我国有近400多座固定式海上平台,其中180座平台,已超过设计使用寿命仍在服役,进行健康监测至关重要。通过线性和非线性系统识别、数据扩展过程、贝叶斯方法有限元法修正、波浪载荷校准、测量数据不确定性的,根据中华人民共和国应急管理部2020年11月10日发部的中华人民共和国安全生产行业标准AQ2078-2020老龄化海上固定设施结构主结构安全评估导则,需要做平台的在线监测,其监测结构组成为水上结构部分结构监测和水下结构部分结构监测2部分。

The jacket platform, also known as the piled platform, supports the entire platform through the piles driven into the seabed. It can withstand external forces such as wind, waves, and ocean currents, and can be divided into group pile type, pile foundation type (jacket type), and leg column type. The jacket platform is mainly composed of four parts: the jacket, the piles, the jacket cap, and the deck.

There are nearly more than 400 fixed offshore platforms in China, among which 180 platforms are still in service even though they have exceeded their design service life. Therefore, it is of great importance to conduct health monitoring. Through linear and nonlinear system identification, data expansion processes, finite element method modification based on the Bayesian method, wave load calibration, measurement data uncertainty analysis, etc., according to the Safety Assessment Guidelines for the Main Structure of Aging Offshore Fixed Facilities (AQ2078-2020), an industry standard for work safety in the People's Republic of China issued by the Ministry of Emergency Management of the People's Republic of China on November 10, 2020, it is necessary to carry out online monitoring of the platform. The monitoring structure is composed of two parts: the structural monitoring of the above-water structural part and the structural monitoring of the underwater structural part.



WT-W800导管架平台监测系统的组成 Composition of WT-W800 Jacket platform Monitoring system

主要包含监测主机、气象传感器、测波仪、超弱光纤应力传感器、水下结构光纤应力监测传感器、温度光纤补偿传感器、超弱光纤解调仪、电信号传感器数据采集系统等组成。

The WT-ZN800 jacket platform monitoring system mainly includes a monitoring host, meteorological sensors, wave gauges, ultra - weak fiber optic stress sensors, fiber optic stress monitoring sensors for underwater structures, fiber optic temperature compensation sensors, ultra - weak fiber optic demodulators, data acquisition systems for electrical signal sensors, etc.

WT-W800导管架平台监测系统的组成 Composition of WT-W800 Jacket platform Monitoring system

主机 Host



WTZN - 100N

通道数:16通道
报警方式:差定温
恢复性能:可恢复式
功能构成:探测报警型
光纤接头:FC/APC标准光纤接头
工作湿度:0-96%(无凝结)
工作电压:220VAC
开关量输出:16路
额定工作电流:<0.1A
工作电流:≤0.2A
动作温度设定值:70°C
适用环境温度范围:-10°C~+50°C

Number of channels: 16 channels;
Alarm method: Differential fixed temperature;
Recovery performance: Recoverable;
Functional composition: Detection and alarm type;
Fiber optic connector: FC/APC standard fiber optic connector;
Working humidity: 0 - 96% (no condensation);
Working voltage: 220VAC;
Switch quantity output: 16 channels;
Rated working current: <0.1A;
Working current: ≤0.2A;
Action temperature setting value: 70°C;
Applicable ambient temperature range: - 10°C - + 50°C

超弱光纤应力解调仪 Ultra - weak Fiber Optic stress Demodulator



WS - W800V

波长范围:1528nm~1568nm
波长重复性:±2pm
动态范围:30dB
光栅反射率:0.001%~0.1%
数据刷新时间:≤1s
应变精度:≤2με
温度精度:≤0.2°C
工作温度:0°C~50°C
输入电源:DC12V/13W(满载)

Wavelength range: 1528nm - 1568nm;
Wavelength repeatability: ±2pm;
Dynamic range: 30dB;
Grating relectivity: 0.001% - 0.1%;
Data refresh time: ≤1s;
Strain accuracy: ≤2με;
Temperature accuracy: ≤0.2°C;
Working temperature: 0°C - 50°C;
Input power supply: DC12V/13W (full load).

信号采集主机 Signal Acquisition Host



WTZN - 100

电流:(0~20)/(4~20)/(0~10) mA
电压:(0~5)/(1~5)/(0~10)V/20/100mV
电阻: 400Ω、1750
数字信号: Fr、Fr.
热电阻: PT100, PT100, Cu50,
Cu53' BA1' BA2
热电偶: S' R' B' k, N' E, J' T'
WRE5-26, WRE3-25, F1, F2
电源电压:220VAC
工作温度:0°C~50°C
工作湿度:20%~85%RH(不结露)
通讯接口:RS232C/RS485通讯、以太网
测量周期:1秒

Input signals:
Current: (0 - 20) mA' (4 - 20) mA' (0 - 10) mA;
Voltage: (0 - 5) V' (1 - 5) V' (0 - 10) V' 20mV' 100mV;
Resistance: 400Ω' 1750Ω;
Digital signals: Fr' Fr;
Thermal resistance: PT100' PT100' Cu50' Cu53' BA1' BA2;
Thermocouple: S' R' B' k' N' E' J' T' WRE5 - 26' WRE3 - 25' F1' F2;
Power supply voltage: 220VAC;
Working temperature: 0°C ~ 50°C;
Working humidity: 20% - 85% RH (non - condensing);
Communication interfaces: RS232C/RS485 communication' Ethernet;
Measurement cycle: 1 second.

超弱光纤水下应变传感器 Ultra - weak Fiber Optic underwater strain sensor



WS - YB - 300

中心波长:1528~1568nm
测量范围:0~500kpa
分辨率:≤0.1%F.S
测量精度:≤0.5%
温度漂移:0.2kpa/°C
工作温度:-30°C~+80°C

Central wavelength: 1528 - 1568nm;
Measurement range: 0 - 500kpa;
Resolution: ≤0.1% F.S;
Measurement accuracy: ≤0.5%;
Temperature drift: 0.2kpa/°C;
Working temperature: - 30°C - 80°C

超弱光纤加速度传感器 Ultra - weak Fiber Optic Acceleration sensor



WS - YB - 20

精度:±5%F.S
分辨率:0.1%F.S
工作温度:-40°C~+200°C
量程(max):±200g
灵敏度:0.5~200 pm/g
固有频率:5kHz
工作频率:5Hz~4kHz

Accuracy: ±5% FS;
Resolution: 0.1% FS;
Working temperature: - 40°C ~ 200°C;
Range (max): ±200g;
Sensitivity: 0.5 - 200 pm/g;
Natural frequency: 5kHz;
Working frequency: 5Hz - 4kHz.

低频位移传感器 Low - Frequency Displacement Sensor



WS - YB - 30

频响范围:0.5Hz~200Hz(-3db);
灵敏度:8mV/μm±5%;
最大测量范围:±1mm;
输出型式:-10V~+10VAC;
幅值线性度:<3%;
供电电源:±12VDC;
使用温度环境:-30°C~100°C
使用湿度环境≤95%(非冷凝);
重量:250g;
外型尺寸:Φ66mm×103mm

Frequency response range: 0.5Hz - 200Hz (-3db);
Sensitivity: 8mV/μm±5%;
Maximum measurement range: ±1mm;
Output type: - 10V - + 10VAC;
Amplitude linearity: <3%;
Power supply: ±12VDC;
Operating temperature environment: - 30°C ~ 100°C;
Operating humidity environment: ≤95% (non - condensing);
Weight: 250g;
External dimensions: Φ66mm×103mm

超弱光纤应变传感器 Ultra - Weak Fiber Optic Strain Sensor



WS - YB - 100

中心波长:1528~1568nm
中心波长误差:±0.5nm
反射率:0.001%~0.1%
光栅长度:4mm、10mm
边模抑制比:≥15dB
应变灵敏度:1.15pm/με
工作温度:±200°C

Central wavelength: 1528 ~ 1568nm;
Central wavelength error: ±0.5nm;
Relectivity: 0.001% - 0.1%;
Grating length: 4mm' 10mm;
Side - mode suppression ratio: ≥15dB;
Strain sensitivity: 1.15pm/με;
Working temperature: ±200°C

雷达测波仪 Radar wave sensor



WS-LDCB

量程范围:0~75m
频率范围:26GHz
精度:±10mm(量程10m)
/±15mm(量程20m)
过程温度:-40°C~+150°C
过程压力:常压
功率:5 W
信号输出:(4-20)mA(可带HART)
RS485

Measurement range: 0 - 75 m;
Frequency range: 26GHz;
Accuracy: ±10mm (range 10m)/±15mm (range 20m);
Process temperature: - 40°C ~ +150°C;
Process pressure: Atmospheric pressure;
Power: 5 W;
Signal output: (4 - 20) mA (with HART available), RS485.

平台智能精确称重系统 Platform intelligent precise weighing system

系统概述 System Overview

平台智能精确称重系统数字化中控室由集装箱控制室、液压站、控制阀箱、千斤顶、重量传感器、操作台、控制计算机、交换机、数据集中控制从站等部件组成。用于快速制定科学合理的称重方案,完成高精度称重作业。提供称重千斤顶所需的液压动力,智能控制液压千斤顶的上升过程与下降过程,对称重过程数据进行采集与分析,实时计算称重重量与重心位置,分析系统的安全性,通过采集与分析各传感器数据,对整个称重过程进行现场监控,当有异常或者故障时实时报警等。

The digital central control room of the platform intelligent precise weighing system consists of components such as a container control room, a hydraulic station, a control valve box, jacks, weight sensors, an operation console, a control computer, a switch, and a data centralized control slave station. It is used to quickly formulate a scientific and reasonable weighing plan and complete high - precision weighing operations.

It provides the hydraulic power required for the weighing jacks, intelligently controls the rising and lowering processes of the hydraulic jacks, collects and analyzes the data during the weighing process, calculates the weighing weight and the position of the center of gravity in real - time, analyzes the safety of the system, conducts on - site monitoring of the entire weighing process by collecting and analyzing the data of each sensor, and issues real - time alarms when there are abnormalities or faults.

- 桩腿3D可视化:主界面展示称重现场桩腿的数据量,在称重之前导入桩腿坐标参数表单,实现桩腿布局;
- 三维可视化界面导航栏:主界面上方以导航栏的形式提供3D可视化、称重状态、网络配置等相关功能界面切换,展示海工装备重心坐标及总称重重量,称重过程海工设备的倾斜度;
- 自动故障诊断:系统提供自动故障诊断功能,包含千斤顶超载、重量传感器超载、通信模块信号丢失;
- 桩腿数据显示:主界面展示称重现场每个桩腿所承受的总重量及位移量,提供称重数据打印导出功能;
- 称重操作按钮:主界面右侧设计兼容原有操作界面的软件按钮,实现称重过程的控制,包括:称重准备、初始化、预上升、顶升、下降等;



- 3D Visualization of spud Legs: The main interface displays the data volume of the spud legs at the weighing site. Before weighing, import the form of spud leg coordinate parameters to realize the layout of spud legs.
- Navigation Bar of 3D Visualization Interface: Above the main interface, there is a navigation bar that provides the switching between relevant functional interfaces such as 3D visualization, weighing status, and network configuration. It also shows the coordinates of the center of gravity and the total weighing weight of the offshore engineering equipment, as well as the inclination of the offshore engineering equipment during the weighing process.
- Automatic Fault Diagnosis: The system provides an automatic fault diagnosis function, including jack overload, weight sensor overload, and signal loss of the communication module.
- Display of spud Leg Data: The main interface shows the total weight and displacement borne by each spud leg at the weighing site, and provides the function of printing and exporting weighing data.
- weighing Operation Buttons: On the right side of the main interface, there are software buttons that are compatible with the original operation interface to control the weighing process, including: weighing preparation, initialization, pre - lifting, jacking, lowering, etc.

WT-W800FPSO单点在线监测系统 WT-W800 FPSO single point monitoring system

系统概述 System Overview

采用超弱光纤光栅传感器、扭力传感器及温-振一体传感器对单点系统进行实时监测,确保数据精准传输,实时预警潜在风险,大幅提升海上作业安全性与设备维护效率。通过多传感器融合技术,系统可精确捕捉微小异常,及时反馈至控制中心,有效预防事故发生,保障人员与设备安全。

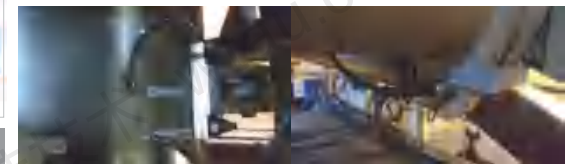
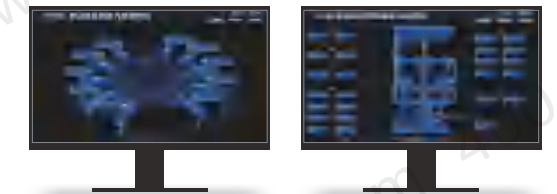
ultra-weak fiber Bragg grating sensors, torque sensors, and temperature-vibration integrated sensors are used to conduct real-time monitoring of the single-point system, ensuring accurate data transmission, issuing real-time warnings of potential risks, and significantly improving the safety of offshore operations and the efficiency of equipment maintenance. Through the multi-sensor fusion technology, the system can precisely capture minor abnormalities and promptly feedback them to the control center, effectively preventing accidents and ensuring the safety of personnel and equipment.



左右舷监测正常数据曲线 Normal Data Curve of Port and Starboard Side Monitoring



台风(摩羯)过境时监测到的异常数据 Abnormal data monitored during the passage of Typhoon (Yagi)



系统特点 System Features

应力监测数据采集

通过超弱光纤光栅应变传感器测量滑环扭力臂的应力变化,以确保生产过程的稳定性和安全性。

Stress Monitoring Data collection

Measure the stress changes of the slip ring torque arm through ultra-weak fiber Bragg grating strain sensors to ensure the stability and safety of the production process.

数据分析展示

产生数据后归纳分析现有数据情况,对实时数据进行图表形式展示,使得整个监测过程直观呈现。

Data Analysis and Presentation

After generating data, summarize and analyze the current data situation, and present real-time data in the form of charts to make the entire monitoring process visually apparent.

监测阈值预警

生产过程中的所受海况及其他外界影响对扭力臂所受应力设置阈值,并及时感知环境变化,方便生产管理。

Monitoring Threshold Early warning

Set thresholds for the stress on the torque arm caused by the sea conditions and other external influences during the production process, and promptly sense environmental changes, which is convenient for production management.

监测数据存储

对作业过程中扭力臂所受应力变化情况进行实时监测、存储、分析,为顶层决策提供数据支撑,方便生产复盘。

Monitoring Data storage

conduct real-time monitoring, storage and analysis of the stress changes endured by the torque arm during the operation process, providing data support for top-level decision-making and facilitating the review of production.

FPSO外输带缆在线监测

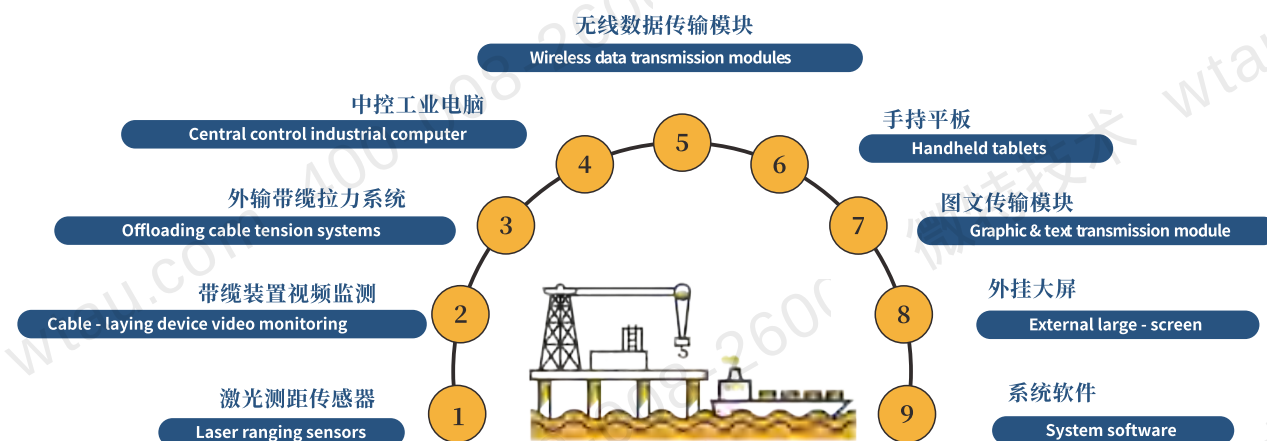
FPSO offshore loading mooring line online monitoring

系统概述 System Overview

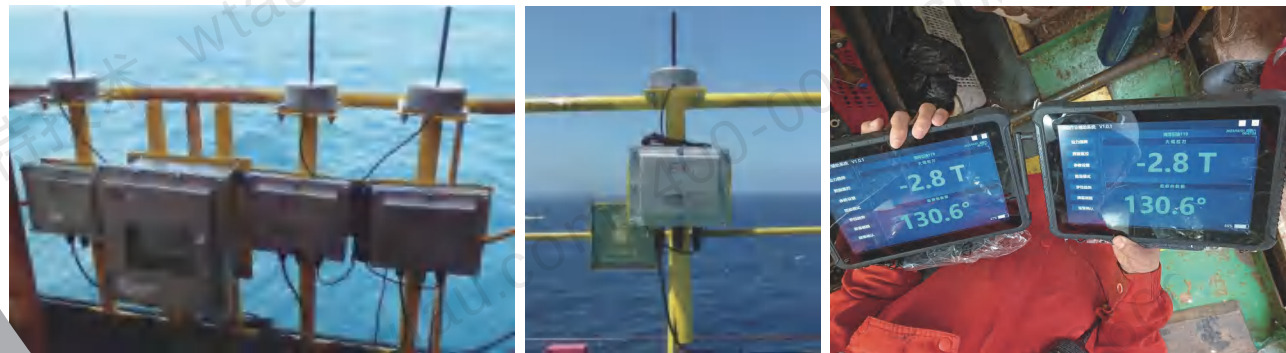
为解决油轮在靠泊平台外输过程中的碰撞及实时监测船舶相对运行轨迹,保证海上油田安全稳定经济生产,将平台提油船之间安装智能船舶外输系统,实时监测两者靠泊到离泊期间的数据,能为生产一线提供良好的生产作业指挥辅助,能有效地避免船舶两者靠泊到离泊期间过程中发生的各种事故。

In order to address the issue of collisions during the external oil transfer process when oil tankers are berthing at the platform and to monitor the relative running trajectories of the ships in real time, and to ensure the safe, stable and economical production of offshore oilfields, an intelligent ship external oil transfer system will be installed between the platform and the oil lifting vessels. This system can monitor the data in real time during the period from the berthing to the departure of the two, providing good production operation command assistance for the front line of production, and effectively preventing various accidents that may occur during the period from the berthing to the departure of the ships.

系统组成 System composition



应用案例 Application cases

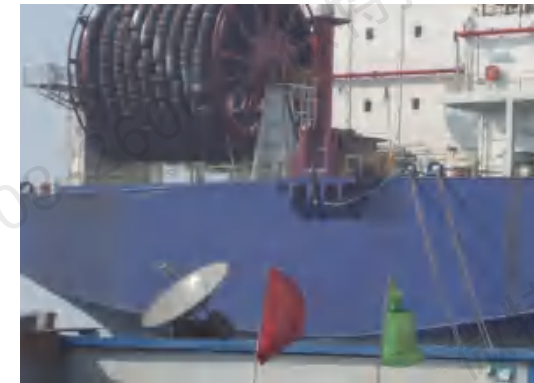


旁靠外输和串靠外输是海上平台原油外输的两种主要方式,根据各自具有不同的特点,制定适用场景。

side-by-side offloading and tandem offloading are two main methods for the offshore crude oil offloading of offshore platforms. Applicable scenarios are formulated according to their respective different characteristics.

旁靠外输

Side-by-side berthing for external oil transfer



- 通过激光测距来监测油轮靠平台外输时' 船头和船尾的相对距离
- 通过带缆装置的视频和音频监测, 在船头实时监测船尾带缆的视频和音频
- 通过带缆装置的拉力的预警、报警和远传至中控实时监测
- 在提油轮通过手持平板实时监测外输过程中的数据和视频及音频

Monitor the relative distances between the bow and the stern of the oil tanker when it is engaged in external oil transfer while berthing at the platform through laser ranging.

Monitor the video and audio of the mooring operation at the stern in real time at the bow through the video and audio monitoring of the mooring device.

Conduct real-time monitoring through the early warning, alarm of the pulling force of the mooring device and remotely transmitting the relevant information to the central control.

Monitor the data, video and audio during the external oil transfer process in real time on the oil lifting tanker through a handheld tablet.

串靠外输

Berthing in series for external oil transfer



- 通过带缆装置的拉力预警、报警和远传至中控实时监测
- 通过接入FPSO船舶向数据调整油轮方向
- 在提油轮通过手持平板实时监测外输过程中的数据和视频及音频

conduct real-time monitoring by means of the tension pre-warning and alarm of the mooring device, and remotely transmitting the information to the central control system.

Adjust the direction of the oil tanker by accessing the heading data of the FPSO (Floating Production storage Offloading vessel) at the bow.

Monitor the data, video and audio during the external oil transfer process in real time on the oil lifting tanker through a handheld tablet.

WT-W800钻井设备应力在线监测系统

WT-W800 Online stress monitoring system for drilling equipment

系统典型应用 Typical applications



型 号: WT-W800	Model No.: WT-W800
显 示: 8英寸液晶显示屏	Display: 8 inch LCD
环境温度: -20°C~+70°C	Operating temperature: -20°C~+70°C
环境湿度: 95%(25°C)	Operating humidity: 95%(25°C)
信号输入: ≤6通道	Signal input: ≤6channels
控制输出: ≤6通道	Control output: ≤6channels
系统误差: ≤5%(F.S)	System composition error: ≤5%(F. S)
能量消耗: <30W	Powerconsumption: <30W
报警音量: >60db	Alarmvolume: >60db
防护等级: IP65	IP grade: IP65
工作电压: AC220V/DC24V	Powersupply: AC220V / DC24V

系统特点 System Features

确保安全,可靠 Reliable

- * ISO、CE、CCS认证,品质可靠
- * 时刻监控钻井设备作业的各项数据
- * 意外断电有数据保护功能
- * 视觉和听觉双重报警
- * 带操作黑匣子记录功能,对危险操作可返回查看
- * 充分考虑现场工作情况,防水防尘防碰撞
- * ISO、CE、CCS certification, quality and reliable
- * Time monitoring crane job data
- * Unexpected power outages data protection features
- * Visual and auditory dual alarm
- * With the operating data logging capabilities, dangerous operation to return to the View
- * Give full consideration to the work site, waterproof and dustproof anti-collision

使用方便,直观 Intuitive

- * 一屏显示各类数据、所有信息尽收眼底
- * 显示图形可完全符合您的设备
- * 模拟钻井设备动态显示(指定型号仪表)
- * 系统简单易懂,智能人机交互
- * Full screen display various data, all information can be seen
- * Display graphics fit your crane device
- * Dynamic display can simulate crane (instrument) of the specified type
- * System operation simple, intelligent human-computer interaction.

提升效率,提高生产力 Productive forcesy

- * 保障钻井设备安全可靠、高效的运行
- * 支持数据下载分析(远程功能可实现在线分析与诊断)
- * 直观的图形显示给操作员提供便捷的参考
- * 可靠的售后团队,及时响应你的需求

功能扩展,实用 Practical

- * 在线监测井架受力情况
- * 为设备的评估提供依据
- * 累计载荷重量记录
- * 累计井架结构受力分析
- * 累计运行时间记录
- * 钩钢丝绳保养提示
- * On-line monitoring project
- * The cumulative load weight record
- * Cumulative record cycles
- * Total run time record
- * Main hook and rope maintenance tips

兼容性强,灵活 Flexible

- * 中英文界面切换
- * 系统兼容于各类主流传感器
- * 系统适用于各类钻井及修井设备
- * 系统输出信号类型广泛
- * Chinese and English interface
- * Compatible with all types of sensors on the market
- * Applicable to all types of crane
- * Widely output signal types

- * Ensuring crane safe, reliable and efficient operation
- * Supported operating data download (remote function available on-line analysis and diagnosis)
- * Intuitive graphical display provides the operator with a quick reference
- * Reliable after-sales team to respond to your needs in a timely manner

应力在线监测系统的组成

Composition of online stress monitoring system for drilling equipment

销轴重量传感器 pin type load cell



WS-ZX

测量范围: 从5KN开始
典型应用: 工业称重
制造自动化
钢丝绳的拉力测量
测量精度: $1.0 \pm 0.005 \text{mv/v}$
极限过载: 250%F.S
密封等级: IP68
安全过载: 150%F.S
使用温度范围: $-30^\circ\text{C} \sim +70^\circ\text{C}$

特性: 内置薄膜传感元件
不锈钢材质
集成放大电路
具有较好的长期稳定性
抗冲击性能强
适合动态、静态测量
温度漂移小

Range: start from 5KN
Typical Applications: Industrial weighing;
manufacturing automation; wire rope pull
strength measurement
Accuracy of measurement: $1.0 \pm 0.005 \text{mv/v}$
Ultimate overload: 250%F.S
IP Code: Ip68
Safe overload: 150%F.S
Temperature range: $-30^\circ\text{C} \sim +70^\circ\text{C}$

Characteristics:
Built-in film sensing element
Stainless steel material
The integrated amplifier circuit
Long-term stability
Strong impact resistance
Suitable for dynamic and static
measurements
Tiny temperature drift error

应力传感器 Strain gauge sensor



WS-TP-100

典型应用: 负载感应
传送运输系统
钢丝绳的拉力测量
测量精度: $1.5 \pm 0.005 \text{mv/v}$
极限过载: 250%F.S
密封等级: IP68
安全过载: 150%F.S
使用温度范围: $-30^\circ\text{C} \sim +70^\circ\text{C}$

特性: 内置薄膜传感元件
不锈钢材料
集成放大电路
具有较好的长期稳定性
抗冲击性能强
重复精度高
适合动态、静态测量
温度漂移小

Typical Applications: load sensing;
Transfer transportation system; wire rope
pull strength measurement
Accuracy of measurement: $1.0 \pm 0.005 \text{mv/v}$
Ultimate overload: 250%F.S
IP Code: IP68
Safe overload: 150%F.S
Temperature range: $-30^\circ\text{C} \sim +70^\circ\text{C}$

Characteristics:
Built-in film sensing element
Stainless steel material
The integrated amplifier circuit
Long-term stability
Strong impact resistance
Suitable for dynamic and static
measurements
Tiny temperature drift error

扭矩传感器 Tension wheel turntable torque sensor



WS-NJ

工作电压: 24VDC
输出信号: $0 \pm 10 \text{V}$
工作温度: $-30^\circ\text{C} \sim +80^\circ\text{C}$
非线性误差: $\leq 0.5\%$

power supply: 24VDC
Output signal: $0 \pm 10 \text{V}$
Working temperature: $-30^\circ\text{C} \sim +80^\circ\text{C}$
Nonlinear error: $\leq 0.5\%$

立管压力传感器 Standpipe pressure sensor



WS-YL

工作电压: 24VDC
输出信号: 4~20mA
敏度元件工作温度: $-50^\circ\text{C} \sim +125^\circ\text{C}$
电子部件工作温度: $-40^\circ\text{C} \sim +85^\circ\text{C}$
测量范围: 0~0.1MPa到0~80MPa
线性: $\pm 0.15\% \text{ F.S}$
重复性: $\pm 0.1\% \text{ F.S}$
防爆等级: Exia II CT5
防护等级: IP65

Working Power: 24VDC
Output Signal: 4~20mA
Working Temperature of Sensitivity
Element: $-50^\circ\text{C} \sim +125^\circ\text{C}$
Working Temperature of Electronic
Parts: $-40^\circ\text{C} \sim +85^\circ\text{C}$
Measuring Range: 0~0.1MPa to 0~80MPa
Linearity: $\pm 0.15\% \text{ F.S}$
Repeatability: $\pm 0.1\% \text{ F.S}$
Explosion-Proof Grade: Exia II CT5
IP Grade: IP65

泥浆出口流量传感器 Mud outlet flow sensor



WS-LL-1

工作电压: 24VDC
输出信号: 4~20mA(二线制)
工作温度: $-40^\circ\text{C} \sim +80^\circ\text{C}$
量程: 0~40MPa
综合精度: $\leq \pm 1\% \text{ FS}$
温度影响: $\leq \pm 0.04\% \text{ FS}/^\circ\text{C}$
防爆等级: Exia II CT5
防护等级: IP65

Working Power: 24VDC
Output Signal: 4~20mA
Working Temperature: $-40^\circ\text{C} \sim +80^\circ\text{C}$
Range: 0~40MPa
Comprehensive Accuracy: $\leq \pm 1\% \text{ FS}$
Temperature Influence: $\leq \pm 0.04\% \text{ FS}/^\circ\text{C}$
Explosion-Proof Grade: Exia II CT5
IP Grade: Ip65

灰罐称重系统 cement tank weighing system

产品介绍 Product introduction

微特开发的水泥浆配给料灌装平台系统,须配备自动配给料称重控制电器系统,以实现水泥浆各原料罐按比例自动给料、缺料报警、原料罐装料过载报警,缺料时提供报警信号使配料系统停机等工作。

Cement slurry filling platform system should be equipped with automatic ration material weighing control system to realize slurry feedstock proportionally, starved feeding alarm, feeding overload alarm, and when starved feeding, offer alarm signal to stop running, etc.



执行的标准和规范 Standards and specifications

灰罐配料称重系统的制造及材料符合下列标准与规范。

符合国家标准GB3836.1-2000《爆炸性环境用防爆电气设备通用要求》及GB3836.4-2000《爆炸性环境用防爆电气设备本质安全型电路和电气设备“i”的要求》电气设备的控制、继电保护设计遵循GB和IEC相关标准。供货的电气设备和材料从国内外公认合格的制造厂商中选择。随机配套控制箱、小型仪表盘应采用防尘防溅密封结构,并符合GB4208中规定的IP56等级的要求。

WT-W650V cement tank load system's manufacturing process and materials comply with the following standards and specifications.

Meet the national standards GB3836.1-2000 <General requirements for explosive environment with explosion-proof electrical equipment> and GB3836.4-2000 <General requirements for explosive environment with explosion-proof electrical equipment which with secure circuit and electrical equipment "i"> electrical equipment control, relay protection design follow GB and IEC standards. Electrical equipment and materials from the corresponding industry recognized manufacturers. Whole system with control box, Small dashboard using dustproof splash seal structure, and meet IP56 in GB4208 standard.

系统布局及传感器布局 System layout and sensor layout



传感器可选择的组合:

- 1.重量传感器
- 2.导波雷达传感器
- 3.重量传感器+导波雷达传感器

Sensor optional combination

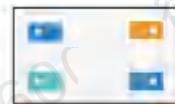
- 1.Weight sensor
- 2.Guided wave radar sensor
- 3.Weight sensor + Guided wave radar sensor



径向配置方式
Radial distribution
installation



切向配置方式
Tangential distribution
installation



矩形配置方式
Rectangle distribution
installation

灰罐称重系统现场安装 Cement tank load system field installation



防爆接线盒现场
Explosion-proof junction box



现地仪安装图片
Instrument installation drawing



W650V 显示仪表参数 W650V display instrument parameters:

防爆级别:Ex dIIBT4
工作电压:DC12~24V或AC220V
产品功能:产品带数据记录功能和黑匣子功能
工作环境温度:-30℃~+70℃
工作环境湿度:20℃~95%RH(不能结露)
整机功耗:<35W
报警音量:>60db
系统误差:≤±3%

- * ISO、CE、CCS认证,品质可靠
- * 时刻监控灰罐作业的各项数据
- * 意外断电有数据保护功能
- * 视觉和听觉双重报警
- * 带操作黑匣子记录功能,对危险操作可返回查看
- * 充分考虑现场工作情况,防水防尘防碰撞

Explosion-proof grade: Ex dIIBT4
Working voltage: DC12V~24V or AC220V
Function: Built-in data records and storage capabilities
Working temperature: -30℃~+70℃ degree Centigrade
Working humidity: 20~90%RH (Prohibit dew)
Power consumption: ≤50W
Alarm volume: ≥60db
System error: ≤±3%

- ISO/CE/CCS certification, reliable character
- Real-time monitoring kinds of cement tank's data
- Breakpoint memory and power-off protection function
- Sound and light warning function
- Can view real-time operating history records
- Waterproof, dustproof and anti-collision

灰罐称重系统传感器 Cement tank load system sensor

销轴重量传感器 pin type load cell



WS-ZX

材质:不锈钢
线缆:带船用阻燃通信线缆50米
灵敏度:1.0±0.005MV/V
极限过载:250%F.S
最大激励电压:15VDC
安全过载:150%
IP等级:IP 68

Material: Stainless steel
Cable: with marine flame retardant communication cable 50 meters
Sensitivity: 1.0±0.005MV/V
Limit overload: 15VDC
The biggest excitation voltage
Safety overload: 150%
IP Code: IP68

钢丝绳监测系统

Steel wire rope monitoring system

柱式重量传感器 Column type load cell



WS-ZS

材质:不锈钢
线缆:带船用阻燃通信线缆50米
灵敏度:1.0±0.005MV/V
极限过载:250%F.S
最大激励电压:15VDC
安全过载:150%
IP等级:IP 68

Material: Stainless steel
Cable: with marine flame retardant communication cable 50 meters
Sensitivity: 1.0±0.005MV/V
Limit overload: 15VDC
The biggest excitation voltage
Safety overload: 150%
IP Code: IP68

应力传感器 Strain gauge sensor



WS-TB

贴片式称重料位计是利用支撑结构受力变形这一特征,具有高灵敏度准确的检测出材料微小的变形并将这些变形转换成重量值,只需要将传感器紧密的用螺栓贴合在支撑结构上

Deformation behavior of brace structure is the functional principal of this SMD type weight sensor, and it's with high sensitivity, can detect the tiny material deformation and convert to weight value, it just need to joint sensor tightly on the supporting structure of the bolt.

雷达物位计 Radar Material Level Measuring Instrument



WS-DB

雷达物位计可以测量从发射信号到返回信号的时间差,从而测算可测量距离和物位,不需要载体介质,可以以光速传递。

脉冲工作频率:

26GHz (JPR-155-159),
6GHz (JPR-151-154),

导波频率:

500M-2GHz (JVR-151-156)

适用介质:固体粉料

应用:水泥仓粉料的测量、粉煤灰粉料测量

防爆认证:

Exib II C T6 Gb / Exd II C T6 Gb

测量范围:30m

频率:500MHz-1.8GHz

天线:双缆式天线

测量精度:±5mm

过程温度:-40°C ~ 250°C

Radar Material Level Measuring Instrument can measure time difference from the launch information to return signal, thus measurement can measure distance and location, don't need a carrier medium, and can be passed at the speed of light,

the working frequency of pulse:

26 GHz (JPR - 155-159),
6 GHz (JPR - 151-154),

guided wave frequency:

500 m - 2 GHz (JVR - 151-156).

Applicable medium: solid powder

Applications: cement silo powder, fly ash powder measurement

Explosion-proof certification: Exib II C T6 Gb / Exd II C T6 Gb

Range: 30m

Frequency: 500MHz-1.8GHz

Antenna: double line antenna

Accuracy of measurement: ±5mm

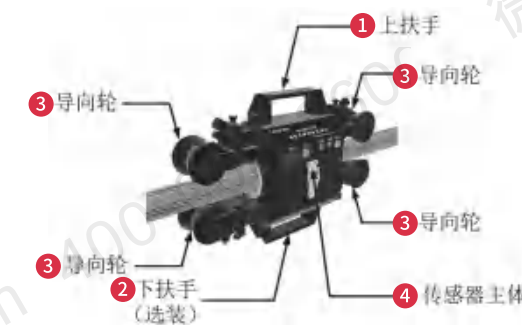
Process temperature: -40°C ~ +250°C

系统概述 System Overview

WT-WS850V-HY系列钢丝绳检测评估系统,作为一款自主运行的安全检测程序,它凭借其卓越的兼容性,能够轻松适应多种现代计算机系统。该系统集检测、报警、数据存储与风险评估多项功能于一体,大幅提高检测效率。在确保检测流程不受干扰的前提下,它能够有效检测出钢丝绳的内外损伤,自动生成检测报告,避免了人工检测效率低下及主观因素带来的不确定性,真正实现了智能化、高效化的检测流程。

The WT-WS850V- HY series wire rope detection and evaluation system, as an independently operating safety inspection program, with its outstanding compatibility, can easily adapt to a variety of modern computer systems. This system integrates multiple functions such as detection, alarm, data storage and risk assessment, which greatly improves the detection efficiency. On the premise of ensuring that the detection process is not interfered with, it can effectively detect the internal and external damage of wire ropes, automatically generate detection reports, avoiding the in efficiency of manual inspection and the uncertainties caused by subjective factors, and truly realizing an intelligent and efficient detection process.

产品参数 Product Parameters



- 1 上扶手: Upper handle
- 2 下扶手(选装): Lower handle (Optional)
- 3 导向轮: Guide wheel
- 4 传感器主体: Sensor main body

使用范围:

WT-WS850V-HY-20: 10~20mm
WT-WS850V-HY-30: 21~30mm
WT-WS850V-HY-40: 31~40mm
WT-WS850V-HY-50: 41~50mm
(超过范围可定制)

速度范围:0.3~3m/s

气隙范围:5~10mm

通讯方式:有线 / WIFI

额定充电电压:220VAC ± 10%

工作电流:≤200mA

传感器功耗功率:≤300mW

满电连续使用时长:≥8h

可检测损伤类型:断丝,磨损,腐蚀,变形

断丝精度:≥1根断丝

磨损精度:≥3% (突变磨损)

检测精度:≥95%

使用环境温度:-35°C ~ +70°C

使用相对湿度:≤95% RH (25°C)

贮存温度环境:-40°C ~ +70°C,
相对湿度≤95%

Application Range:

WT-WS850V-HY-20: 10~20mm
WT-WS850V-HY-30: 21~30mm
WT-WS850V-HY-40: 31~40mm
WT-WS850V-HY-50: 41~50mm
(customization is available beyond the above range)

speed Range: 0.3~3m/s

Air Gap Range: 5~10mm

communication Mode: Wired / WIFI

Rated charging Voltage: 220VAC ± 10%

Operating current: ≤200mA

power Dissipation of sensor: <300mW

continuous Operation Time when

Fully charged: ≥8h

Detectable Damage Types: Broken

wires, wear, corrosion, deformation

Broken Wire precision: ≥1 broken wire

Wear precision: ≥3% (sudden wear)

Detection precision: ≥95%

Operating Ambient Temperature: -35°

C~70°C

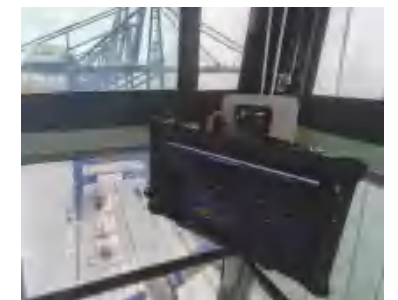
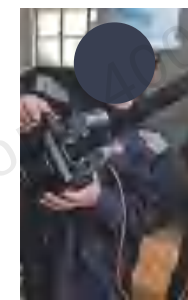
Operating Relative Humidity:

≤95%RH (25°C)

storage Temperature Environment:

-40°C ~ +70°C, relative humidity ≤95%

安装案例 Installation Cases

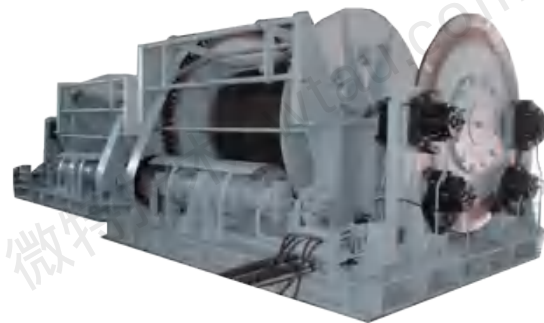


锚机称重系统 winch load tension monitoring system

系统概述 System Overview

WT-W630V型产品采用微电脑或工业标准的PC104控制机为核心控制,模块化结构,全按键操作,液晶显示。具有精度高、性能稳定、工作可靠、安装调试简便等特点及数字显示、声光报警、断电保护等功能。由于采用开放性的软件设计,该系列产品具有很强的现场编程能力,锚机设备的各种工况参数的设置或者修改,均可通过仪器面板的按键完成,使调试工作变得简单直观。

WT-W630V adopts microcomputer control or industrial standard PC104 machine as control core, modular structure, all keystrokes, liquid crystal display (LCD). With high precision, stable performance, reliable operation, easy installation and debugging, etc and digital display, sound and light alarm, power protection, etc. Because of using open software design, this series of products have strong field programming ability, windlass devices under various working conditions of parameter setting or change, all can finish through the instrument panel of buttons, make it simple and intuitive debugging.



产品功能概述 Function introduction

- 1、能够自动检测设备的各种信号并输入仪表进行微机处理。如:重量信号、仪表能显示预先设定的各种工况参数。如、额定重量、实际重量、
- 2、系统能自动对锚机的性能参数进行连续采样,实时跟踪,微电脑进行运算、比较、判断,随时发出声光报警,显示各参数的同时,并切断锚机向危险方向运行的回路,同时允许其向安全方向运行,从而实现安全自动控制;
- 3、参数输入时有防抖动延时功能,对数据掉电保持功能,存贮的数据可保持10年;
- 4、密码设定功能,防止参数误设定;
- 5、主机通用性好,在不改变主机的情况下,只要将软件加以修改,就能够满足现场使用要求。

如果您有特殊要求,本公司可为您按需定制。

1. Automatic test equipment of all kinds of signals, input them to instrument, and microcomputer processing. Such as: weight signal. The meter can display preset parameters under various working conditions. Such as: the rated weight, actual weight;
2. System can automatically continuous sampling parameters on the performance of the windlass, real-time tracking, microcomputer arithmetic, comparison, judgment, ready to send out sound and light alarm, display parameters at the same time, and cut off the windlass to dangerous direction circuit, at the same time allow it to run in the direction of security and safety so as to realize the automatic control;
3. Anti delay jitter when inputting parameters, data protection when unexpected power outages, storage of data can be stored for 10 years;
4. Password to prevent the parameters set by mistake;
5. Host has good generality, can meet the demand of the worksite by changing the software, special requirements can be customized.

锚机称重仪系统重要组成 Important part of WT-W630V Windlass load system

称重监控主机 Parameters of monitoring host



WT-W630V中控仪表



WTZ-A300V 现地仪表

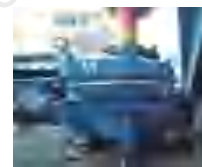
工作电压: DC12~24V或AC220V
产品功能: 产品带数据记录功能和黑匣子功能
环境温度: -30℃~+70℃
环境湿度: 20℃~95%RH (不能结露)
整机功耗: <35W
报警音量: >60db
系统误差: ≤±3%
工作方式: 连续
防护等级: 室外部分IP67
室内部分IP65
控制继电器: 容量 AC220V 5A

Working voltage: DC12~24V or AC220V
Product features: with the function of data records and storage capabilities
Working temperature: -30℃ ~ 70℃ degree Centigrade
Working humidity: 20 ~ 90 %RH (Prohibit dew)
Power consumption: <35W
Alarm volume: >60db
System error: ≤±3%
Work style: continuous IP grade: indoor part IP67, outdoor part IP65
Control Relay: capacity AC220V 5A

半潜平台锚机称重传感器 Semi-submersible platform Windlass load sensor



WS-ZS



WS-SHL

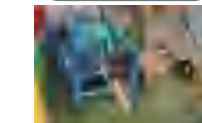
量程范围: 50~500t
精度等级: 0.02
灵敏度: $1.6 \pm 0.005 \text{ mV/V}$
输入阻抗: $380 \pm 20 \Omega$
输出阻抗: $350 \pm 2 \Omega$
绝缘电阻: $\geq 5000 \text{ M}\Omega$
最大供桥电压: 15V
安全过载: 120%F.S.
温度范围: -30℃ ~ +70℃
输出信号: 0~20mV电压模拟信号
材质: 不锈钢

Range: 50 ~ 500ton
Accuracy: 0.02
Sensitivity: $1.6 \pm 0.005 \text{ mV/V}$
Input resistance: $380 \pm 20 \Omega$
Output resistance: $350 \pm 2 \Omega$
Insulation resistance: $\geq 5000 \text{ M}\Omega$
The biggest bridge voltage: 15V
Safe overload: 120%F.S.
Temperature range: -30℃ ~ +70℃
Output signal: 0~20mV voltage analog signals
Material: stainless steel

拉力传感器 Line rider load cell



WS-SHL



测量范围: 0.5T - 300T
材质: 不锈钢
灵敏度: $1.0 \pm 0.005 \text{ mV/V}$
测量精度: 0.01
极限过载: 250%F.S.
最大激励电压: 15VDC
安全过载: 150%
P等级: IP68

Range: 0.5ton - 300ton
Material: stainless steel
sensitivity: $1.0 \pm 0.005 \text{ mV/V}$
Accuracy: 0.01
Breaking load: 250%F.S.
The biggest excitation voltage: DC15v
safe load: 150%F.S.
IP Class: IP68



WS-SAG-1213编码器
WS-SAG-1213 Encoder



自升式钻井平台锚机安装WS-ZX-150T
Self-elevating drilling platform WS-ZX-150T



WT-W630V/数据控制处理箱
WT-W630V/Data control box

WT-WCR880舱室液位在线监测系统

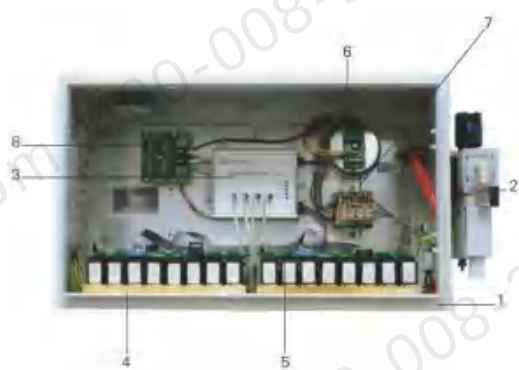
WT-WCR880 Ship compartment liquid level online monitoring system

压差式舱室液位监测系统

Differential Pressure Type compartment Liquid Level Monitoring system

压差式舱室液位监测系统通过电磁阀控制被测舱室内相应气管的气压,通过测量液体不同深度的压力差,间接计算出液位高度。通过压差式液位监测,用户可实现高可靠性的液位监控。

Differential Pressure Type compartment Liquid Level Monitoring system The system controls the air pressure of the corresponding air whistle in the measured cabin through solenoid valves, calculates the liquid level height indirectly by measuring the pressure difference at different depths of the liquid. users can achieve highly reliable liquid level monitoring through differential pressure technology.



- 1、机柜 cabinet
- 2、空气处理单元 Air Handling unit
- 3、scu(传感器和控制单元) scu (sensor & control unit)
- 4、阀块 valve Block
- 5、阀门卡 valve card
- 6、电源 power supply
- 7、电源端子 power Terminal
- 8、通信终端communication Terminal

雷达液位监测系统 Radar Level Meter

雷达物位是一款采用脉冲原理非接触式雷达物位计,通过天线发射极窄且能量很低的微波脉冲信号,这个脉冲信号以光速在空间传输,遇到被测介质发生反射,反射信号被仪表接收,发射脉冲信号与接收脉冲信号的时间间隔与基准面到被测介质表面的距离成正比,通过测量发射与接收的时间间隔,来实现天线至介质表面距离的测量。

The radar level meter is a non-contact radar level meter that uses the pulse principle. It transmits extremely narrow and low-energy microwave pulse signals through the antenna. This pulse signal is transmitted in space at the speed of light and is reflected by the measured medium. The reflected signal is received by the instrument. The time interval between the transmitted pulse signal and the received pulse signal is proportional to the distance from the reference surface to the surface of the measured medium. By measuring the time interval between transmission and reception, the distance from the antenna to the surface of the medium is measured.



雷达物位计 Radar Material Level Measuring Instrument



WS-YN

可测介质:固体、液体
最大量程: 0 - 120m
防爆等级: ExdIICT6
防护等级: Ip67
介质温度: - 40°C ~ +250°C
过程压力: 0 - 4Mpa
信号输出: 4 - 20mA/HART/Rs485/Modbus

Measurable Media: solid, Liquid
Maximum Measuring Range: 0 - 120m
Explosion-proof Rating: ExdIICT6
protection Level: Ip67
Medium Temperature: -40°C ~ +250°C
process pressure: 0 - 4Mpa
signal Output: 4 - 20mA/HART/Rs485/Modbus

压力式液位 pressure-type liquid level gauge

压力式液位计测量原理是将压力信号转化为电信号。内置温度传感器实时修正温度对传感器灵敏度及零点漂移的影响,确保全量程精度。

The system controls the air pressure of the corresponding air whistle in the measured cabin through solenoid valves, calculates the liquid level height indirectly by measuring the pressure difference at different depths of the liquid. users can achieve highly reliable liquid level monitoring through differential pressure technology.

压力传感器 Pressure sensor



WS-YL

最大量程: 0.5 - 200 m
防爆等级: ExdIICT4
防护等级: Ip67
介质温度: -20°C ~ +185°C
测量精度: $\pm 0.5\%$ F.S
信号输出: 4 - 20mA/HART/Modbus

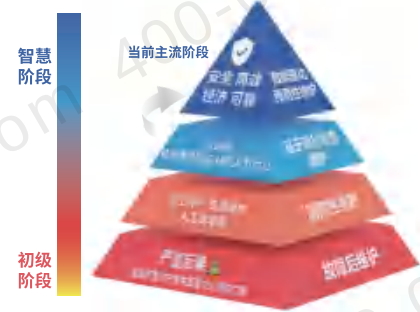
Maximum Measuring Range: 0.5 - 200 m
Explosion-proof Rating: ExdIICT4
protection Level: Ip67
Medium Temperature: -20°C ~ +185°C
Measurement Accuracy: $\pm 0.5\%$ F.S
signal Output: 4 - 20mA/HART/Modbus



机泵状态监测及故障诊断多维度分析系统

Multi-dimensional analysis system for machinery& pump condition monitoring and fault diagnosis

系统概述 System Overview



在现代化生产企业的经营中,因设备故障停机带来的损失是十分巨大的。传统的设备维护方式仅依靠人工进行。运维工作主要采用发现问题、解决问题的“救火”模式,预防性维护较差,难以降低故障率,预测管理更是任重道远。

微特技术所研发机泵状态监测及故障诊断多维度分析系统全面采集设备信息,对设备实施有效的状态监测和故障诊断,精准分析提前预判,解决了企业对设备管理的智能化需求,成为工业信息化,智能化管理的重要组成部分。

In the operation of modern manufacturing enterprises, the losses caused by equipment breakdowns and shutdowns are extremely substantial. The traditional approach to equipment maintenance relies solely on manual labor. The operation and maintenance work mainly adopts the "firefighting" mode of identifying problems and then solving them. preventive maintenance is relatively poor, making it difficult to reduce the failure rate, and predictive management still has a long way to go.

The multi-dimensional analysis system for the condition monitoring and fault diagnosis of mechanical pumps developed by weite Technology comprehensively collects equipment information, conducts effective condition monitoring and fault diagnosis of the equipment, and accurately analyzes and predicts in advance. It has addressed the intelligent needs of enterprises for equipment management and has become an important part of industrial informatization and intelligent management.

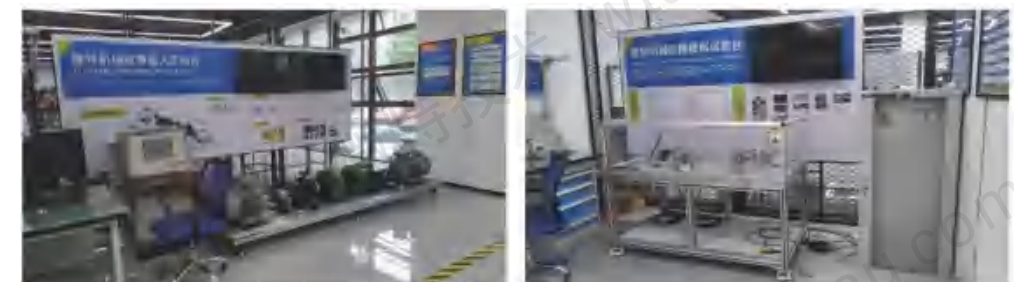
解决机械故障四大难题

Effectively solve the four major problems of mechanical failures



微特机泵在线安全监测分析系统是一款专门针对机泵设备的振动、转速、温度、电流等状态信号进行采集与记录,并进行信号融合分析,结合故障诊断智能诊断算法,实现对机泵设备的实时智能诊断、故障预警预报、趋势分析、离线数据分析等,判别系统的运行状态与故障类型,提前预测故障,降低维修成本,保障设备安全生产。

The weite Online safety Monitoring and Analysis system for Mechanical pump Equipment is a specialized system that collects and records status signals such as vibration, rotational speed, temperature, and current of mechanical pump equipment. It conducts signal fusion analysis and, combined with intelligent fault diagnosis algorithms, realizes real-time intelligent diagnosis, fault early warning and prediction, trend analysis, offline data analysis, etc. of the mechanical pump equipment. It can determine the operation status and fault types of the system, predict faults in advance, reduce maintenance costs, and ensure the safe production of the equipment.



机械故障诊断实验台 Mechanical fault diagnosis experimental platform

微特创新研发的机泵综合谱诊断方法,针对故障综合谱的复杂性开发的算法工具集,集成多种时频域分析方法支撑数据分析平台,实现低频宽范围数据分析、动态数据分析、非线性、非稳定故障特征提取、故障诊断与故障预测,普遍适用于各类机泵设备。

The comprehensive spectrum diagnosis method for mechanical pumps innovatively developed by weite is an algorithm toolset developed in response to the complexity of the comprehensive fault spectrum. It integrates a variety of time-frequency domain analysis methods to support the data analysis platform, enabling low-frequency wide-range data analysis, dynamic data analysis, extraction of nonlinear and unstable fault features, fault diagnosis, and fault prediction. It is generally applicable to various types of mechanical pump equipment.



船舶碰撞预警系统

Ship collision warning system

在广袤无垠的近海海域,各类船舶往来穿梭至海油作业平台,碰撞风险如影随形。微特技术有限公司倾力打造的船舶碰撞预警系统,为近海支持船舶装上“智慧安全盾”!

系统整合激光雷达、毫米波雷达、可见光摄像头等十余种核心部件,依托 AI 边缘计算主机,实现激光雷达点云与视频画面的精准融合感知。60米探测距离的激光雷达,搭配 125.2° 对角视场角的高清摄像头,能全方位捕捉周边目标动态。

从机械结构加工、电气集成布线,到软件算法部署、系统标定调试,全流程遵循严苛的海洋环境标准。316 不锈钢打造的防护组件与安装支架,可耐受 - 25℃至 40℃的极端温度,不惧海洋盐雾腐蚀。

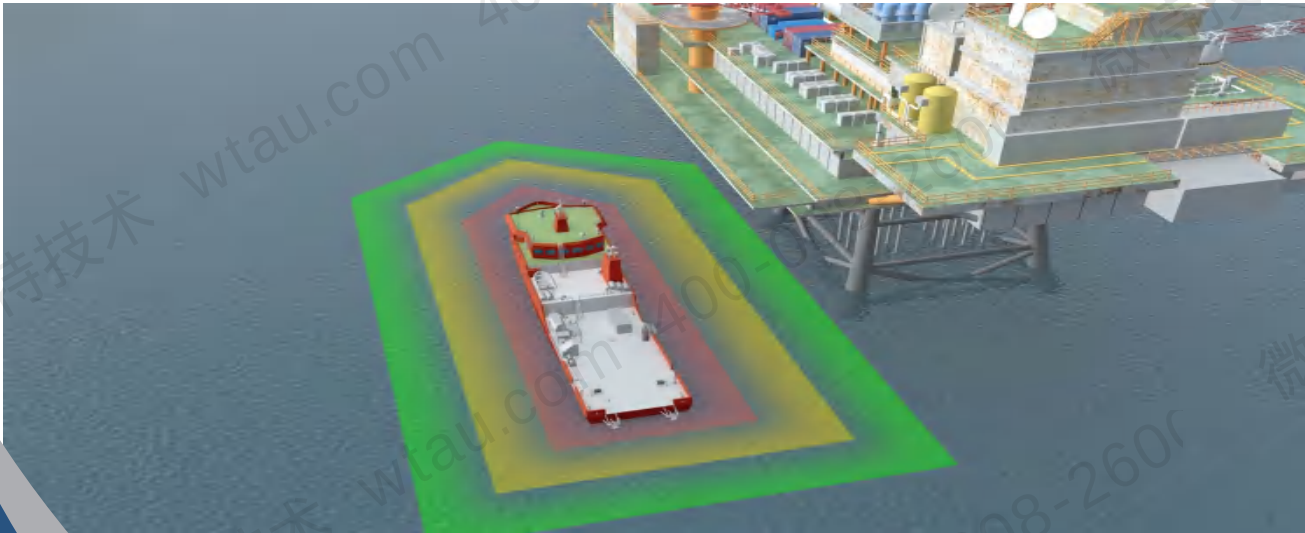
系统上电后,自动完成多传感器时空同步与数据融合,实时监测周边船舶、障碍物的距离与运动轨迹。一旦识别到碰撞风险,立即通过船用调光显示屏发出预警信号,为船员争取充足处置时间。

In the vast offshore waters, vessels of all types shuttle to offshore oil platforms, where collision risks loom ever-present. Weite Technology Co., Ltd. has developed a ship collision early warning system, equipping offshore support vessels with a 'smart safety shield'!

The system integrates over a dozen core components, including LiDAR, millimeter-wave radar, and visible light cameras, leveraging an AI edge computing host to achieve precise fusion perception of LiDAR point clouds and video feeds. LiDAR with a 60-meter detection range, is paired with a high-definition camera featuring a 125.2-degree diagonal field of view, enabling comprehensive capture of dynamic surroundings.

The entire process—from mechanical structure machining and electrical integration wiring to software algorithm deployment and system calibration debugging—adheres to stringent marine environmental standards. The protective components and mounting brackets, fabricated from 316 stainless steel, can withstand extreme temperatures ranging from -25℃ to 40℃ and are resistant to marine salt spray corrosion.

Upon system power-on, it automatically completes multi-sensor spatiotemporal synchronization and data fusion, enabling real-time monitoring of distances and trajectories of surrounding vessels and obstacles. Upon detecting collision risks, it immediately issues warning signals via the marine dimming display screen to provide crew with sufficient time for response.



序号 Order number	名称 Name	技术要求 Technical requirement	
1	激光雷达 Ladar	(1)通用性能: ★最远探测距离:500 m,探测距离(10%反射率):250 m; 探测距离(盲区):≤2m 视场角(H×V):120°×25°; 角分辨率(H×V):≤0.18°×0.24°; ROI视场角(H×V):40°×4.8°,可配置; ROI角分辨率(H×V):≤0.09°×0.08°; ★探测距离、视场角、角分辨率、ROI视场角、ROI角分辨率等参数需提供第三方测试认证报告,第三方检测机构应具备国家认可的相应检测资质,其资质应符合《检验检测机构资质认定管理办法》及相关法律法规要求。 测距准度:±5cm(典型值),±10cm(高反目标) 测距精度:2cm ★线数:单帧线束≥150线 (2)防护可靠性 ★激光波长:1200-1600 nm 激光安全等级:Class-1(IEC-60825) (3)电气与接口 额定电压:24VDC 额定功率:<34W	(1) General performance: ★Maximum detection range: 500 m (10% reflectivity): 250 m; Detection range (blind zone): ≤2m Field of view (H×V): 120. ×25. The angular resolution (H×V) is ≤0.18×0.24. ROI field of view (H×V): 40. ×4.8, configurable; The angular resolution of the ROI (H×V) should be ≤0.09×0.08. ★Detection range, field of view, angular resolution, ROI view Parameters such as field angle and ROI angular resolution must be provided. Third-party testing institutions shall issue the test certification report. Possessing the corresponding testing qualifications recognized by the state, and its qualifications The quality shall comply with the "Qualification Accreditation Management for Inspection and Testing Institutions". The "Management Measures" and relevant laws and regulations. Range accuracy: ±5 cm (typical value), ±10 cm (high Anti-target) Range measurement accuracy: 2 cm ★Number of wires: ≥150 wires per frame (2) protective reliability ★Laser wavelength: 1200-1600 nm Laser safety class: Class-1 (IEC-60825) (3) Electrical and Interface Rated voltage: 24VDC Rated power: <34W
2	可见光摄像头 Visible light camera	(1)摄像头模组 传感器类型:1/1.2"Progressive Scan CMOS 最低照度彩色:0.0005 Lux @ (F1.0,AGC ON) 快门:1/3s~1/100,000 s 宽动态:120 dB 景深范围:3.8m~∞ (2)镜头模组 镜头尺寸接口:M22 水平视场角:102.1° 垂直视场角:52.9° 对角视场角:125.2° 最大光圈数:F1.0	(1) camera module Sensor type: 1/ 1.2" Progressive Scan CMOS Minimum illuminance color: 0.0005 Lux @ (F1.0,AGC ON) Shutter speed: 1/3s to 1/100,000s Wide dynamic range: 120 dB Depth of field: 3.8m~ ∞ (2) lens module Lens size interface: M22 Horizontal field of view: 102.1. Vertical field of view: 52.9. Diagonal field of view: 125.2. Maximum aperture: F1.0

直升机平台气象监测系统

Helicopter platform meteorological monitoring system

系统集成多维度传感器网络, 不仅能实时监测停机坪动态变化(如甲板位移、障碍物接近)及气象数据(风速风向、能见度等), 还可通过智能算法整合环境信息, 为操作人员提供全景式态势感知, 进而增强关键决策环节的操作意识与响应效率。

The system integrates a multi-dimensional sensor network, which can not only monitor the dynamic changes of the apron in real time (e.g., deck displacement, obstacle approach) and meteorological data (wind speed, wind direction, visibility, etc.), but also integrate environmental information through intelligent algorithms to provide operators with a panoramic situational awareness, thereby enhancing operational awareness and response efficiency in critical decision-making processes.



一体式气象传感器 Integrated Meteorological Sensor



免维护设计
低功耗设计
供电方式多样
无线通信连接
安装方便, 无移动部件

Maintenance-free design
low-power design
Diverse power supply methods
wireless communication connection
Easy to install, no moving parts

能见度传感器 Visibility Sensor



免维护 易于安装
无移动部件
低功率消耗
无线通信数据托管
提供信息提醒功能

Maintenance-free, easy to install
No moving parts
Low power consumption
Wireless communication data hosting
Provides information alert function

云高仪 Ceilometer



模块化结构,
易于安装和调试,
防水、防尘、防雷, IP66级,
配有温度控制装置, 防止霜冻,
具备自动诊断功能

Modular structure,
Easy to install and debug,
Waterproof, dustproof, lightning protection, IP68 level
Equipped with temperature control
Device to prevent frost
With automatic diagnostic function

DT数据采集卡 DT data acquisition card



适用于恶劣的户外环境
支持扩展功能
使用寿命长
测量精度高
可定制

Ideal for harsh outdoor conditions
Supports extended functionality
Long service life,
high measurement accuracy
Customizable options

数据监测与呈现 Visibility Sensor

系统将实时计算并呈现运动严重性指数(MSI)和风力严重性指数(WSI)数据, 以及显著垂荡速率(SHR)、倾斜角、横摇角和纵摇角。该系统采用 WT-W887 WTU 型号(E、H、5或5+)或WTC型号(R2或R3)来精确监测直升机甲板中心的船舶运动和加速度。这些数据被传输至 HMS 处理单元, 该单元将直升机甲板运动数据与 MSI 和 WSI 数据一起处理, 以确定直升机作业是否安全。

The system will calculate and display the Movement Severity Index (MSI) and Wind Severity Index (WSI) data in real time data together with significant heave rate (SHR), inclination, roll and pitch of the helideck in realtime. The system utilizes the WT-W887 WTU models (E, H, 5 or 5+) or the WTC models (R2 or R3) to precisely monitor vessel motion and accelerations in the helideck center. These data are transferred to the HMS Processing Unit that processes helideck motion data together with MSI and WSI figures to determine whether the helicopter operation is safe or not.

功能特性 FEATURES

- 实时显示横摇、纵摇、垂荡幅度、垂荡速率和倾角
- 符合最新的 CAP 437 和 HCA 要求
- 符合 NOROG 9.2 版和 NORMAM-27 标准
- 实时采集和显示气象数据
- 可选择从 WTU 或 WTC 输入运动传感器数据
- 测量直升机甲板中心的 3 轴线性加速度

- Real-time presentation of roll, pitch, heave amplitude, heave rate and inclination
- Comply to latest CAP 437 and HCA requirements
- Comply to NOROG ver. 9.2 and NORMAM-27
- Meteorological data acquisition and presentation in real-time
- Selectable motion sensor input from WTU or WTC
- Measurements of 3-axes linear acceleration in the helideck center

获取实时船舶数据

- 控制安装在直升机甲板上的复示灯(着陆前和甲板上模式)
- 存储超过 30 天的存储数据
- 包含波浪和气隙传感器接口

- Obtain real-time ship data
- Control of repeater lights mounted on helideck in pre-landing and on-deck mode
- Stored data for over 30 days
- Wave and air gap sensor interface included

滚转和俯仰输出 ROLL AND PITCH OUTPUT

动态精度 (WTU H 或 E) 0.05° RMS (振幅 ±5°)
Dynamic accuracy (WTU H or E): 0.05° RMS (for a ±5° amplitude)

加速度输出 ACCELERATION OUTPUT

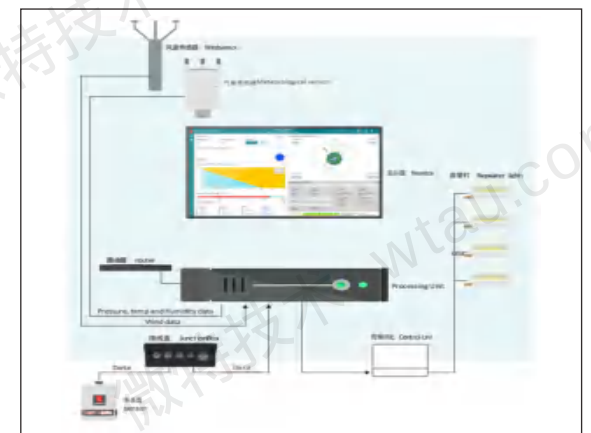
加速度范围(所有轴) ± 30 m/s²
加速度噪声 0.002 m/s² RMS
加速度精度 0.01 m/s² RMS
Acceleration range (all axes): ± 30 m/s²
Acceleration noise: 0.002 m/s² RMS
Acceleration accuracy: 0.01 m/s² RMS

垂向输出 HEAVE OUTPUT

输出范围 ± 50 m, 可调
周期 0 至 25 秒
动态精度 (RMS) 5 cm 或 5% (取较高者)
Output range: ± 50 m, adjustable
Periods: 0 to 25 s
Dynamic accuracy (RMS):
5 cm or 5% whichever is highest

传感器范围 SENSOR RANGE

风速: 0 至 60 米/秒	Wind speed: 0 to 60 m/s
风向: 0 至 359°	Wind direction: 0 to 359°
气温: -40°C 至 +60°C	Air temperature: -40°C to +60°C
湿度: 0 至 100%	Humidity: 0 to 100%
气压: 800 至 1100 百帕	Barometric pressure: 800 to 1100 hPa
云高: 0 至 25000 英尺	Cloud height: 0 to 25000 feet
能见度: 10 至 20000 米	Visibility: 10 to 20000 m
波隙和气隙: 2 至 95 米	Wave and air gap: 2 to 95 m



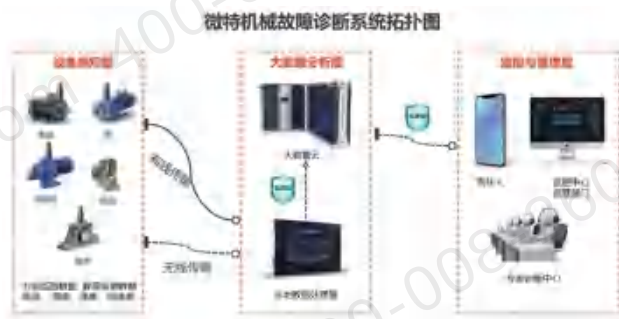
WT-W900V顶驱安全监测预维护系统

WT-W900V Top drive safety monitoring and pre-maintenance system

系统概述 System Overview

顶驱作为钻井平台关键设备之一,也是最容易出故障的设备之一,如何对顶驱状态实时检测,如何快速解决顶驱当前故障/报警问题,如何监督顶驱的日常维护保养情况,以及如何实时预测诊断顶驱异常情况,确保平台钻井作业的连续性与高效性,提高设备管理水平,推动钻井平台设备管理的信息化、数字化进程,成为了顶驱维护管理方面重点研究的方向之一。

As one of the key pieces of equipment on a drilling platform, the top drive is also one of the most failure-prone. How to conduct real-time detection of the top drive's status, quickly address current top drive faults/alarm issues, supervise the daily maintenance of the top drive, and predict and diagnose top drive abnormalities in real-time to ensure the continuity and efficiency of the platform's drilling operations, improve equipment management levels, and promote the informatization and digitization of drilling platform equipment management has become one of the key research directions in top drive maintenance and management.



系统特点 System Features

1. 设备管理量化、规范化:集成设备维修档案,建永久设备管理库;分大修、中修、项修三类,定义不同资料管理,建管理制度;专管探伤及资质,明确时间、资质、报告;实记违规安检项备查。
2. 误操作恢复:安装本地服务器顶驱安全预维护系统,24小时记录司钻台操作,每秒1次,便于责任划分、误操作追查及操作矫正。
3. 智能学习系统:故障经验学习,建数据库固化专业人员经验,随用户量增与时间推移不断完善,彻底解决设备故障无思路问题。
4. 设备预测性维护:专家团队钻井设备技术成熟,拥多项专利。结合震动算法与PLC参数,提升故障预判准确性。
5. 故障报警处理:生命周期实时监测,异常预警。损伤程度及趋势量化显示,损伤位置精确定位,损失类型精准判断。

1. Quantitative and standardized equipment management: Integrate equipment maintenance records and establish a permanent equipment management database. Divide maintenance into three categories: major overhaul, medium-scale overhaul, and item-by-item repair, define different data management methods, and establish management systems. specialize in law detection and qualification management, clarifying time, qualifications, and reports. Record non-compliant safety inspection items for future reference.
2. Misoperation recovery: Install a top drive safety pre-maintenance system on the local server, which records the operations on the driller's console 24 hours a day, once per second. This is convenient for liability division, misoperation tracing, and operation correction.
3. Intelligent learning system: Learn from fault experience, establish a database to solidify the experience of professionals, and continuously improve it as the number of users increases and with the passage of time, completely solving the problem of having no ideas when dealing with equipment failures.
4. Predictive equipment maintenance: The expert team has mature technologies for drilling equipment and holds multiple patents. By combining vibration algorithms with PLC parameters, the accuracy of fault prediction is improved.
5. Fault alarm handling: Real-time monitoring of the life cycle, with abnormal warnings. Quantitatively display the degree and trend of damage, accurately locate the damage position, and precisely determine the type of damage.

微特国际事业部

WEITE INTERNATIONAL BUSINESS DEPARTMENT



出口70多个国家和地区

伴随国家“一带一路”战略的推进,微特加速推动公司向全球化发展,走出国门率先在新加坡、印尼等国组建当地服务团队。

Exported to over 70 countries and regions

With the promotion of the national "the Belt and Road" strategy, Weite accelerated the company's globalization development, and took the lead in establishing local service teams in Singapore, Indonesia and other countries when going abroad.



典型合作用户 Typical cooperative users

